Our Homeland Defense systems have focused on ICBM threats from the North from the Soviet Union and China during the Cold War—and now North Korea and Iran.

- The current homeland BMD systems got their impetus from North Korean ballistic missiles tests, particularly their tests in the late 1990s
- Our current ground-based BMD systems in Alaska and California provide a limited defense against such North Korea’s Taepodong-2 ICBM attacks.

The late 1990s tests directed their ballistic missile launches northward over Japan, prompting U.S. congressional actions and creating sufficient concern for Japan to join forces with the U.S. Navy in developing the Aegis BMD system:

- Japan currently operates four Aegis BMD ships as an integral part of its Self Defense Force (SDF).
- Last week, Japan was sufficiently concerned about the recent North Korean activities that Defense Minister Itsunori Onodera ordered Japan’s Aegis BMD ships to prepare to intercept North Korea’s ballistic missiles.
- In response to Japan’s valid concern about this threat, Defense Secretary Hagel this week announced his decision “to forward-deploy two additional [U.S.] Aegis BMD ships to Japan by 2017,”
- The U.S. now has seven Aegis BMD ships in the region to supplement the four Japanese Aegis BMD ships.

These prudent moves also can help counter another important threat from North Korea, not yet fully recognized and not yet defended against—a North Korean FOBS attack strategy.

- FOBS is fancy shorthand for a fractional orbit bombardment system, pioneered by the Soviet Union during the 1960s. It amounts to using a satellite to carry a nuclear weapon over the South Polar region and attack Americans through our unprotected back door—a capability North Korea has already tested.
- The Unha-3 satellite launch vehicle (SLV) and the Taepodong-2 ICBM are practically indistinguishable—the former launches its payload into orbit (yellow)—to the south, the latter on a ballistic trajectory (green) to the north. Either can be used to create an existential EMP threat. We are defended against the latter, not the former.
Below, the figure on the right below shows that a detonation at an altitude of 150 miles or so would expose the entire United States to a major EMP creating havoc—and quite likely shut down the currently unhardened electric power grid upon which essentially everything depends for electricity.

North Korea satellites could carry nuclear weapons over the South Polar region at such altitudes. North Korea can launch such an attack when it obtains a nuclear weapon of appropriate weight. 

(Since it is to be detonated in space, there is no requirement to survive atmospheric reentry, saving weight and avoiding significant technical challenges.)

Many credible witnesses have stated that this single nuclear burst could create an EMP that would cause irreparable damage to the electric power grid, and several hundred million Americans could die within a year from the lack of food, water, disease, and the consequent societal chaos.

**Recommended Strategy to Defeat the North Korean FOBS:**

- In addition to a declaratory policy threatening retaliation, the U.S. should demand that all North Korean satellite launch payloads be inspected by an appropriate body in which we have confidence—e.g., the International Atomic Energy Agency (IAEA). If not, it should be our policy that we will shoot down such satellites so launched.
- Upon warning (e.g., North Korean satellite launch site preparations) and in the absence of such an independent payload inspection, move an Aegis BMD Cruiser or Destroyer near enough to the North Korean coasts to shoot down the Unha-3 SLV in its boost phase, using an improved targeting algorithm for the Aegis SM-2-Block IV, which is 3-for-3 in its tests against ballistic missiles in the atmosphere moving at speeds consistent with the Unha-3 first stage burn time.
- The SM-3 Block 1A/B interceptors are exo-atmospheric interceptors, so they would face a significant challenge in any attempt at intercepting a satellite before it is injected into orbit—possible but very difficult. In 2008, the Block IA successfully intercepted a dying satellite in orbit—so an ASAT intercept is also a possibility provided needed radar tracking information is provided to the Aegis BMD system. For this purpose, deploy a TPY-2 radar in the Philippines. When it is available for this mission, the Block 2A (which is to be operational in Poland in 2018) will be faster and could reach to even a higher altitude. (The altitude that can be reached is proportional to the square of the interceptor’s burnout velocity.) The SM-3 test record to date (28-hits-in-34-attempts) suggests a 0.824 single shot kill probability, the kill probability would be about 0.97 if at least two SM-3s are assigned to any attempted intercept.
- The ground based interceptors currently deployed at Vandenberg AFB in California probably could intercept a FOBS from North Korea if the Vandenberg command and control system is provided appropriate orbital parameters to cue its interceptors into the right battle space—the same radar in the Philippines could provide this needed cuing information. The Ground Based Interceptor (GBI) system test record suggests only a 0.5 single shot kill probability, so several interceptors—perhaps all four based at Vandenberg—should be launched to assure a high kill probability.
- Finally, even a layered defense will not be perfect, so hardening the electric power grid should be a top national priority. These measures would be inexpensive since all components either exist or are already being developed in funded programs.