**Online Appendix**

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| **Launch Site** | **Geographical Location** |
| Chiha-ri | ‘38d37m00sN','126d41m00sE' |
| Chunggang-up | '41d46m00sN','126d53m00sE' |
| Kanggamchan | '40d24m00sN','125d12m00sE' |
| Kanggye | '40d07m00sN','126d35m00sE' |
| Man'gyongdae-ri | '38d59m00sN','125d40m00sE' |
| Wonsan | '39d09m15sN','127d26m44sE' |
| Namgung-ni | '39d08m00sN','125d46m00sE' |
| No-dong | '40d50m00sN','129d40m00sE' |
| Ok'pyong | '39d17m00sN','127d18m00sE' |
| Paegun | '39d58m00sN','124d35m00sE' |
| Pyongyang | '39d00m00sN','125d45m00sE' |
| Sangwon | '38d50m00sN','126d05m00sE' |
| Sunchon | '39d25m00sN','125d55m00sE' |
| Tokch'on | '39d45m00sN','126d15m00sE' |
| Tokson | '40d25m00sN','128d10m00sE' |
| Yongo-dong | '41d59m00sN','129d58m00sE' |

Table 3: North Korean Launch Site Geographical Information

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| **Target Site** | **Geographical Location** |
| Seoul | '37d31m58sN','127d01m29sE' |
| Pusan | '35d06m10sN','129d02m25sE' |
| Inchon | '37d27m23sN','126d42m19sE' |
| Chinhae | '35d08m53sN','128d38m01sE' |
| Osan AFB | '37d05m16sN','127d01m28sE' |
| Kunsan | '35d54m08sN','126d36m34sE' |
| Tokyo | '35d39m10sN','139d45m12sE' |
| Yokosuka | '35d17m01sN','139d40m02sE' |
| Sasebo | '33d09m33sN','129d43m22sE' |
| Okinawa | '26d12m44sN','127d40m45sE' |
| Misawa | '40d41m13sN','141d23m23sE' |
| Atsugi | '35d26m20sN','139d21m35sE' |
| Andersen AFB | '13d34m31sN','144d55m17sE' |

Table 4: Geographical Information for Target Sites in the Asia-Pacific Region

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| **Interceptor** | **Properties** |
| PATRIOT Interceptor | Maximum Altitude = 5 kmMinimum Altitude = 25 km Burn-out Velocity = 1.5 km/sMaximum Intercept Distance = 30 km |
| THAAD interceptor | Minimum Altitude = 20 kmMaximum Altitude = 150 kmBurn-out Velocity = 2.8 km/sMaximum Intercept Distance = 250 km |
| SM-3 IA/B interceptor | Minimum Altitude = 100 kmMaximum Altitude = 500 kmBurn-out Velocity: SM-3 IA = 3.0 km/sSM-3 IB = 3.5 km/sMaximum Intercept Distance = 700 km |

Table 5: Interceptor Data

Figure A: Missile Trajectory (Chiha-ri, North Korea to Pusan Naval Base, South Korea)



Figure B: Burn-Out Velocity to Intercept Missile Trajectory (Chiha-ri, North Korea to Pusan Naval Base, South Korea)