Introduction

China’s aggressive military activities and political rhetoric in its near seas have encouraged its maritime neighbors to increase their military presence and readiness. Japanese politicians such as Prime Minister Shinzo Abe have pushed for constitutional changes to improve their state’s military capabilities and allow for increased defense spending. Vietnamese leaders have improved trade and defense relations with the United States and India in order to purchase more A2AD systems. We used IHS Jane’s data to catalog the ranges of A2AD systems in China, Taiwan, Indonesia, and Malaysia. We then used the SAM buffer of each country’s shore-based AShM to counter Chinese maritime vessels and aircraft. These are the “safe zones” for Japanese and Indonesian maritime neighbors. We then union this buffer to the Chinese fighter aircraft buffer and select (by attribute) polygons that are not within the Chinese fighter aircraft “safe zone” to represent the missile range of each platform. These buffers reflect ship missile A2AD coverage of China’s maritime neighbors. We now have all five A2AD zones. In order to better illustrate how these layers interact, we can convert them into rasters and use the raster calculator to combine them.

Results

These maps clearly demonstrate that Japan, Taiwan, Vietnam, Indonesia, and Malaysia possess significant military capacity to deter, and if necessary, counter Chinese forces in the ECS and SCS. One key takeaway from these maps is the variety of potent A2AD systems that China’s maritime neighbors could use in a conflict. Even if China can target more fighter aircraft or submarines than our research assumes, other platforms would remain active. It would be especially dangerous for China to send large warships deep into the disputed zones, yet it would need to deploy such ships to control them. Furthermore truck-mounted AShM would be very difficult for China to locate and destroy, and failing to do so in a maritime conflict could severely impinge its capacity to project power. It may appear that China faces fewer difficulties in the disputed areas of the ECS than in the massive SCS. However, it is important to note the higher quality of training and equipment in the Japanese and Taiwanese militaries which make them more capable opponents.

These maps also lead to two important political conclusions. First, these maps imply that China’s maritime neighbors would be better off cooperating in the event of a conflict. It would be much easier for China to suppress its neighbors’ A2AD capabilities individually rather than at the same time. Therefore if a maritime war were imminent, China would seek to diplomatically isolate whichever power it was likely to engage. Additionally, although there is a broad trend in scholarship on East Asia security to examine conflicts through U.S.-China or at best U.S.-China-Japan or U.S.-China-Taiwan paradigms, these are problematic approaches. These maps show that China’s maritime neighbors have significant A2AD capability without U.S. involvement. East Asian security must be viewed through a multilateral paradigm.

Methodology

In order to represent the A2AD zones for each of China’s maritime neighbors, we need the following data for China, Japan, Taiwan, Vietnam, Indonesia, and Malaysia:

1. shore-based AShM ranges
2. fighter aircraft combat radii
3. Surface-to-Air Missile ranges
4. submarine ranges
5. Anti-Submarine Warfare (ASW) helicopters
6. ship missile combat radii
7. ranges of the missile and target impact points for each platform. We then union these fighter aircraft buffers and select (by attribute) polygons that are not within the Chinese fighter aircraft “safe zone” to represent the missile range of each platform. These buffers reflect fighter aircraft A2AD coverage of China’s maritime neighbors.

For submarine zones, we need an A2AD “safe zone” buffer for each country and/fire the combat radius of its Anti-Submarine Warfare (ASW) helicopters. These buffers reflect submarine A2AD coverage of China’s maritime neighbors.

For ship missile zones, we need buffer around each country’s “safe zone” polygons.

For warship zones, we need buffers around Japan, Taiwan, and Vietnam. These were the warship “safe zones” for Japan, Taiwan, and Vietnam. These buffers reflect warship A2AD coverage of China’s maritime neighbors.

For missile boats, these are mainly buffer around each country’s submarine AShM range. These buffers reflect missile boat A2AD coverage of China’s maritime neighbors.

For this research, we use an A2AD “safe zone” buffer for each country and fire the combat radius of its Anti-Submarine Warfare (ASW) helicopters. These buffers reflect Submarine Warfare helicopters.

Conclusion

These buffers reflect submarine A2AD coverage of China’s maritime neighbors.

We used GIS 10.1 ENVI 7.0 to create these rasters and use the raster calculator to combine them. These buffers reflect submarine A2AD coverage of China’s maritime neighbors.