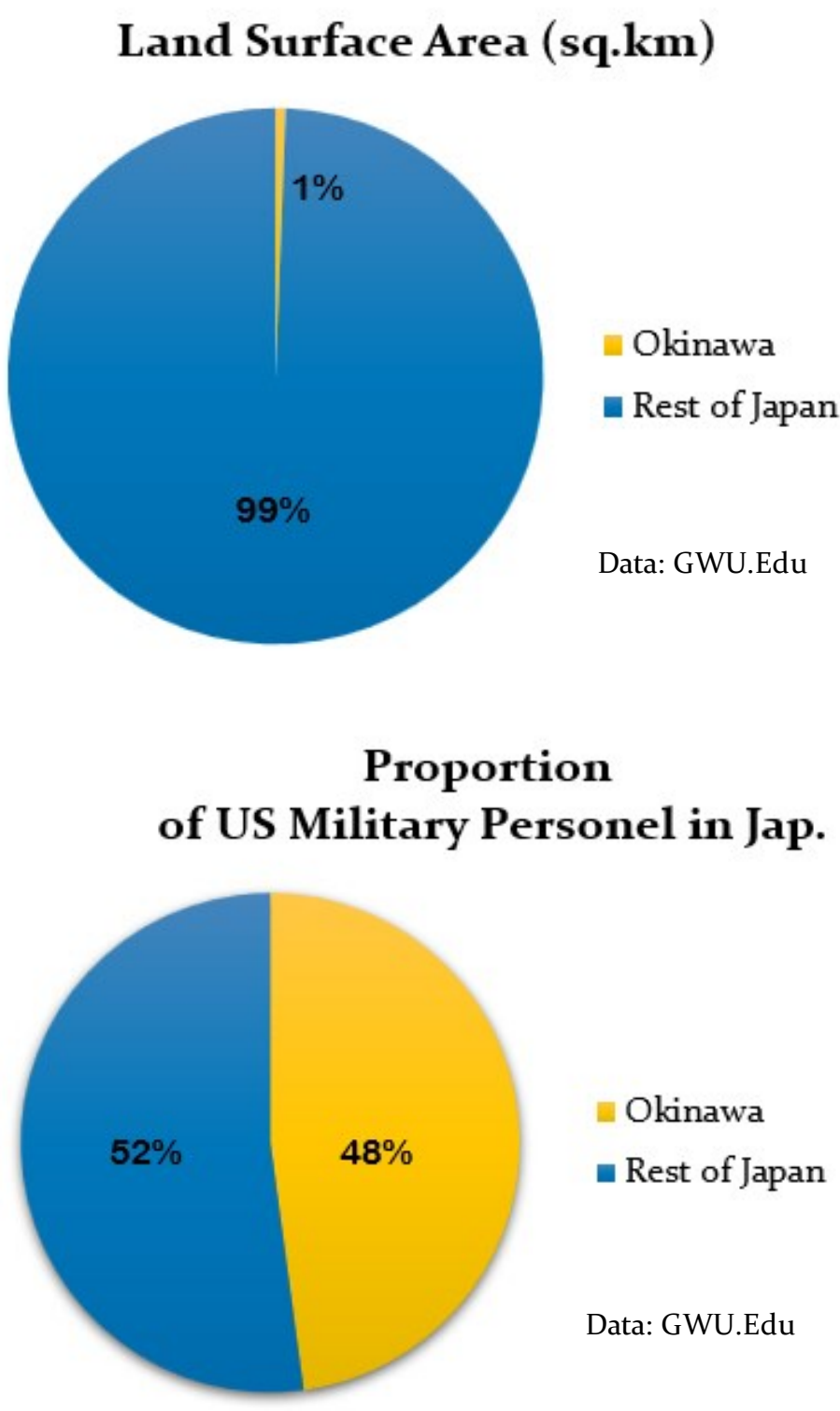


# Equity for Okinawa

## Suitability Analysis for an Air-Base on Kyushu, Japan

### Background

**Okinawa**, one of the smallest prefectures in Japan, is less than 1% of the nation's land mass, yet is home to 52% of the substantial United States armed force presence on Japan. The United States has insisted despite protest from the local population to relocate air station Futenma in Ginowan City, Okinawa to a location off the coast of Okinawa in Henoko bay. The federal government and the US military has insisted that Henoko, is the only viable location for such an airbase. The purpose of this project is to assess the surrounding area of Kyushu Island of Japan and to identify if there are any alternative locations there that could host an airbase with the characteristics of Futenma.

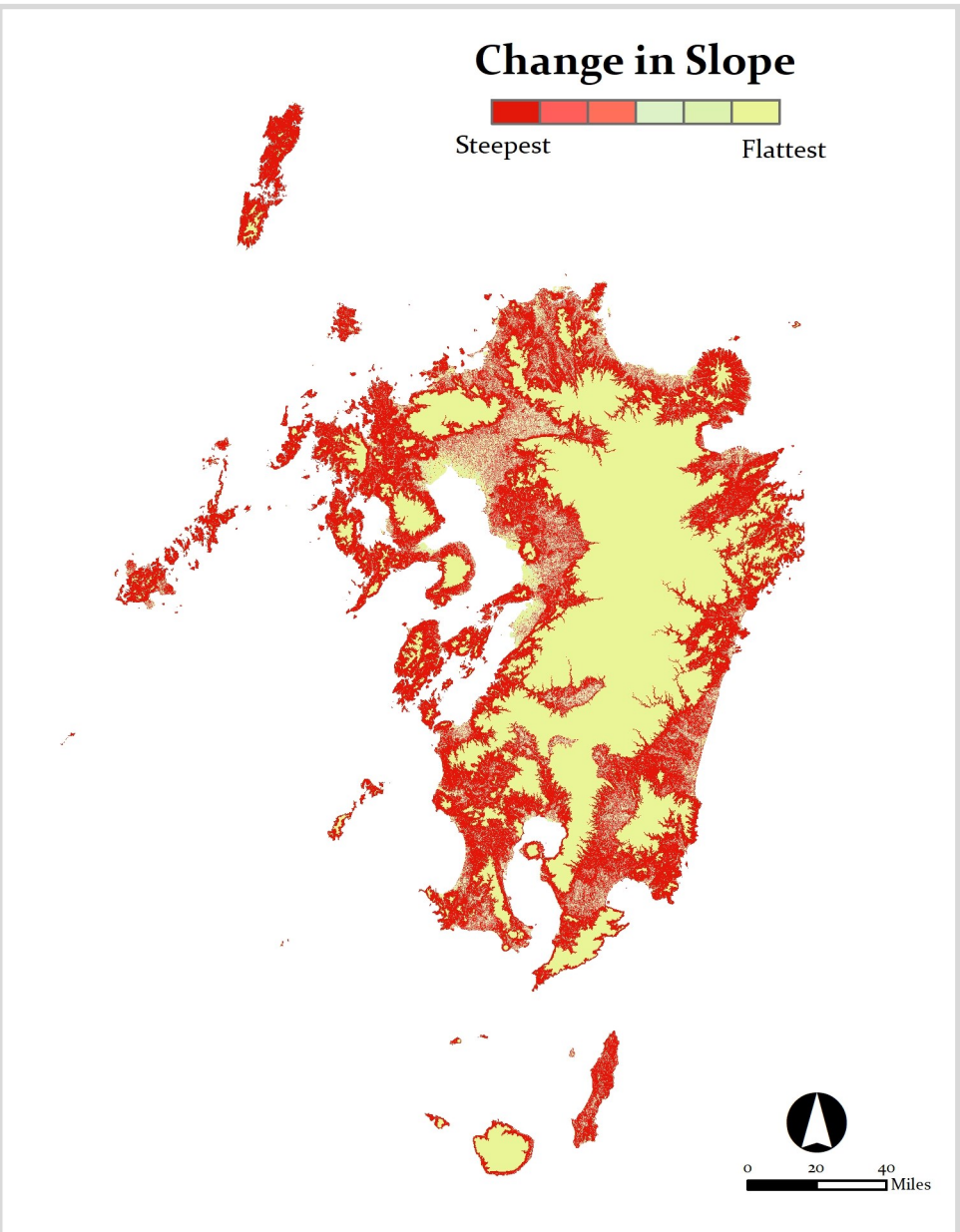


Kyushu is the closest prefecture to Okinawa and has relative strategic proximity to Taiwan and the South China Sea, but with a minor to almost non-existent military presence. The people of Okinawa have suffered sexual assault and other crimes committed by American service members disproportionately. In addition to crimes committed with immunity due to the current status of forces agreement, there have been major vehicular accidents and there is a viable military target in the center of one of Okinawa's largest cities. This study looks to find a potential alternative site for an airbase outside of Okinawa, with the goal of distributing the security burden posed by American military installations in a more equitable fashion. Therefore the spatial question this study will be looking to answer is:

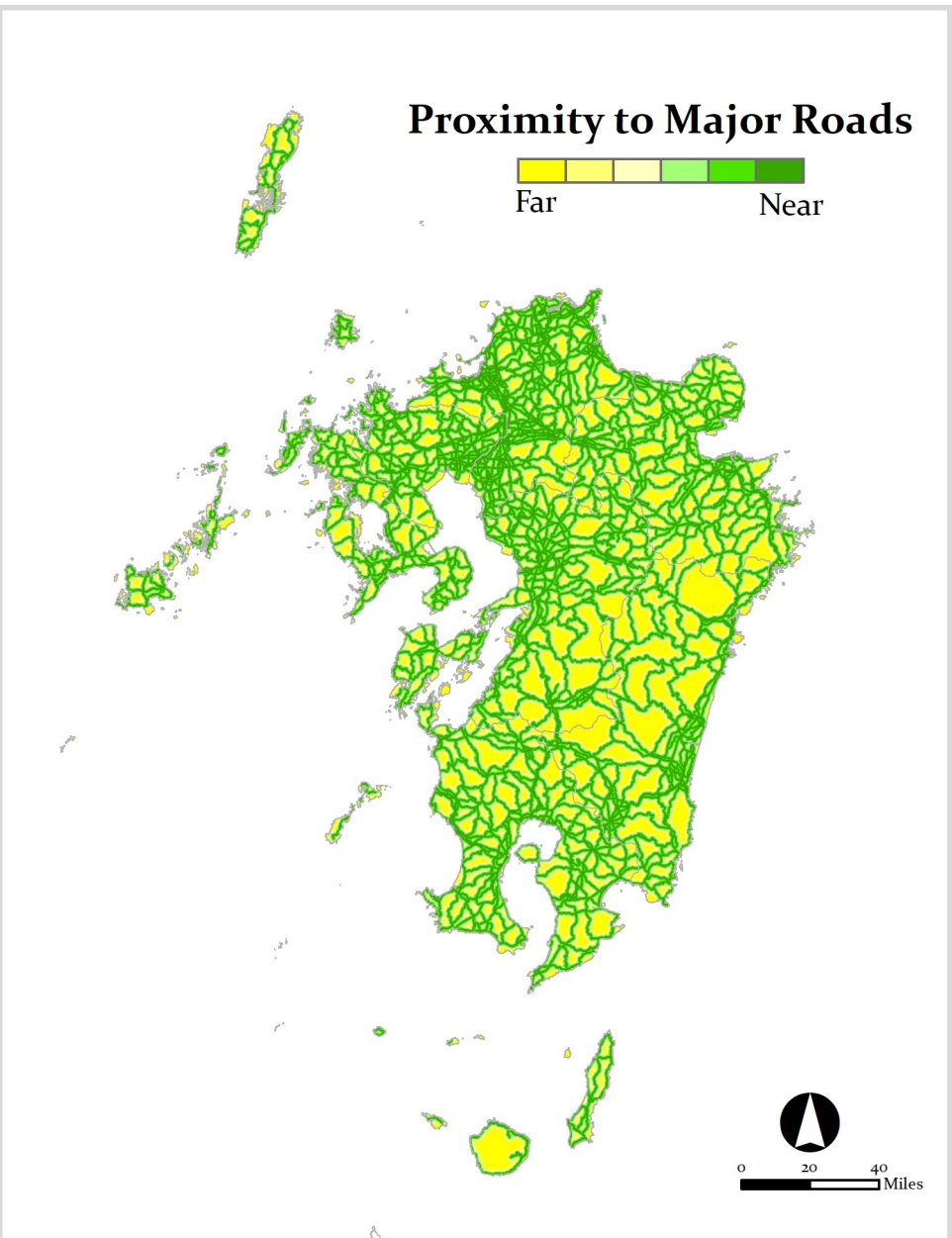
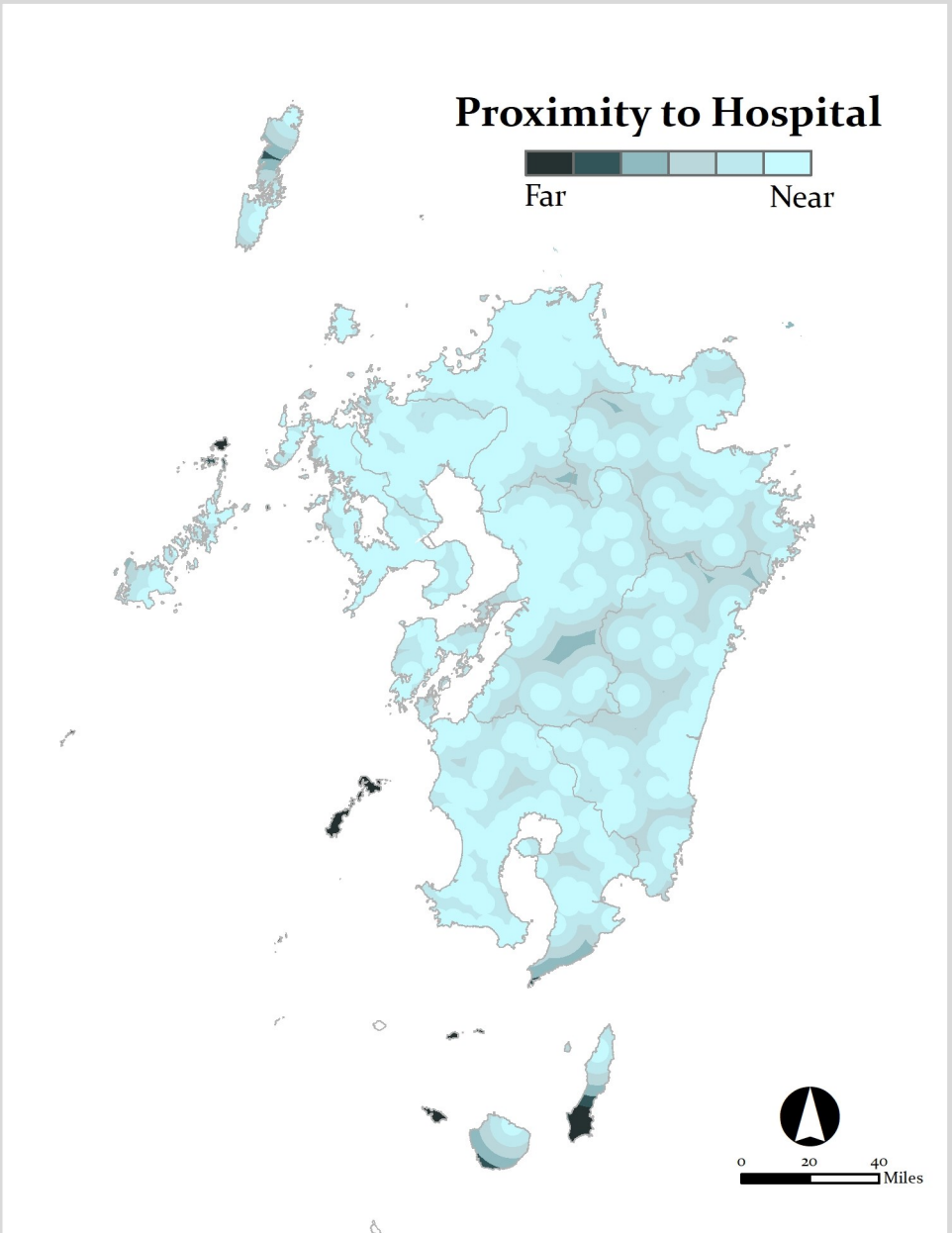
Where are the suitable areas for building an air-base the size of Henoko (approx. 4.8 million square meters) on Kyushu Island of Japan?

### Suitability Factors

**Consistent Elevation** – Utilizing FAA regulations, an airport requires a surrounding cone of four miles with no increase in slope above three degrees for emergency take off and landing procedures. Slope had a two-part critical place in this study, as the actual location of the base was favorable the flatter the slope (1-6) as well as a binary (0-1) if there was any increase in elevation above three degrees within the surrounding 4 mile cone being a non-feasible o.

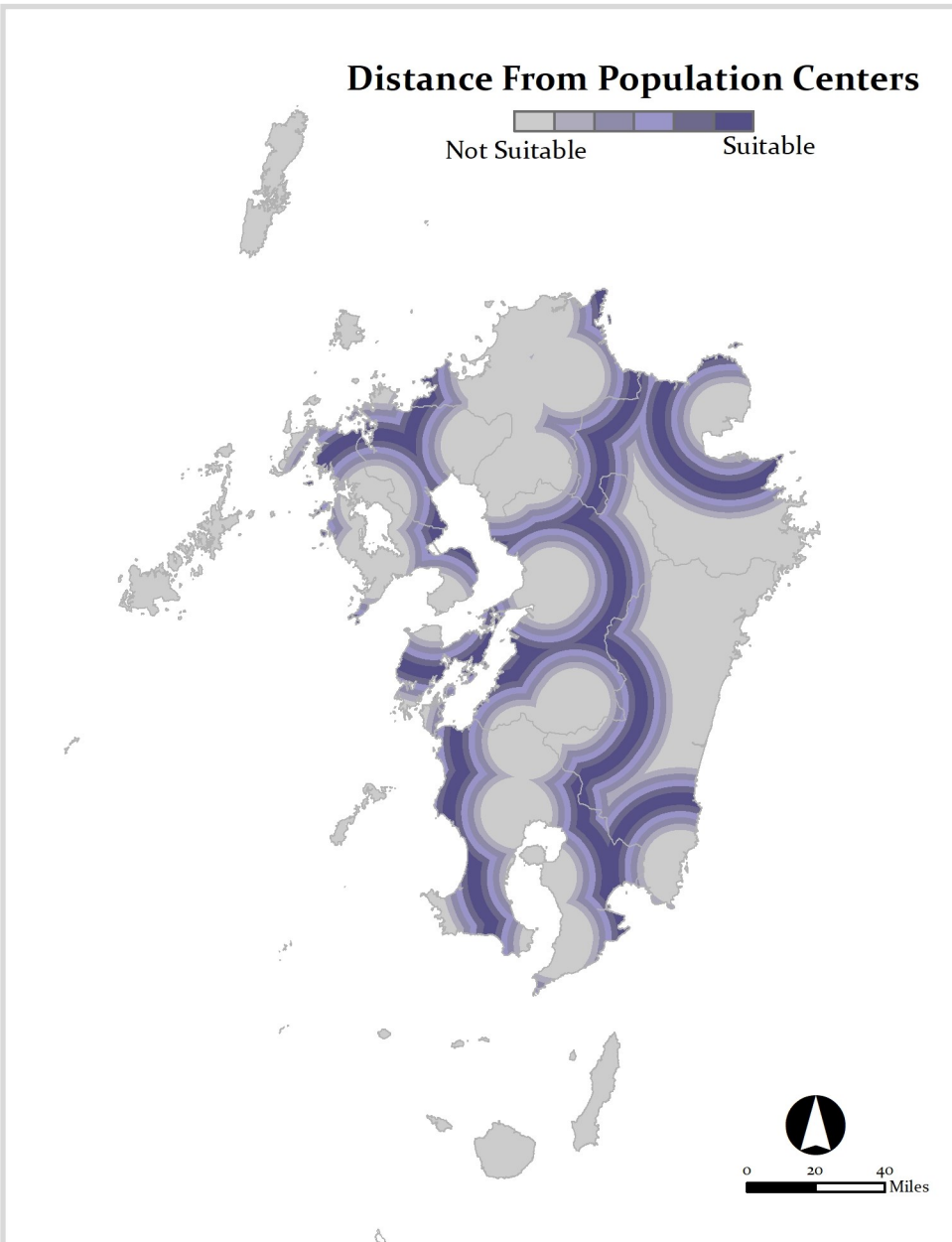


**Proximity to a Hospital** – Given the nature of potential accidents at a military installation, having a major hospital within close proximity was a critical factor. This was ranked (1-6) with a hospital within a 15 minute drive (16000 meters) receiving a 6.

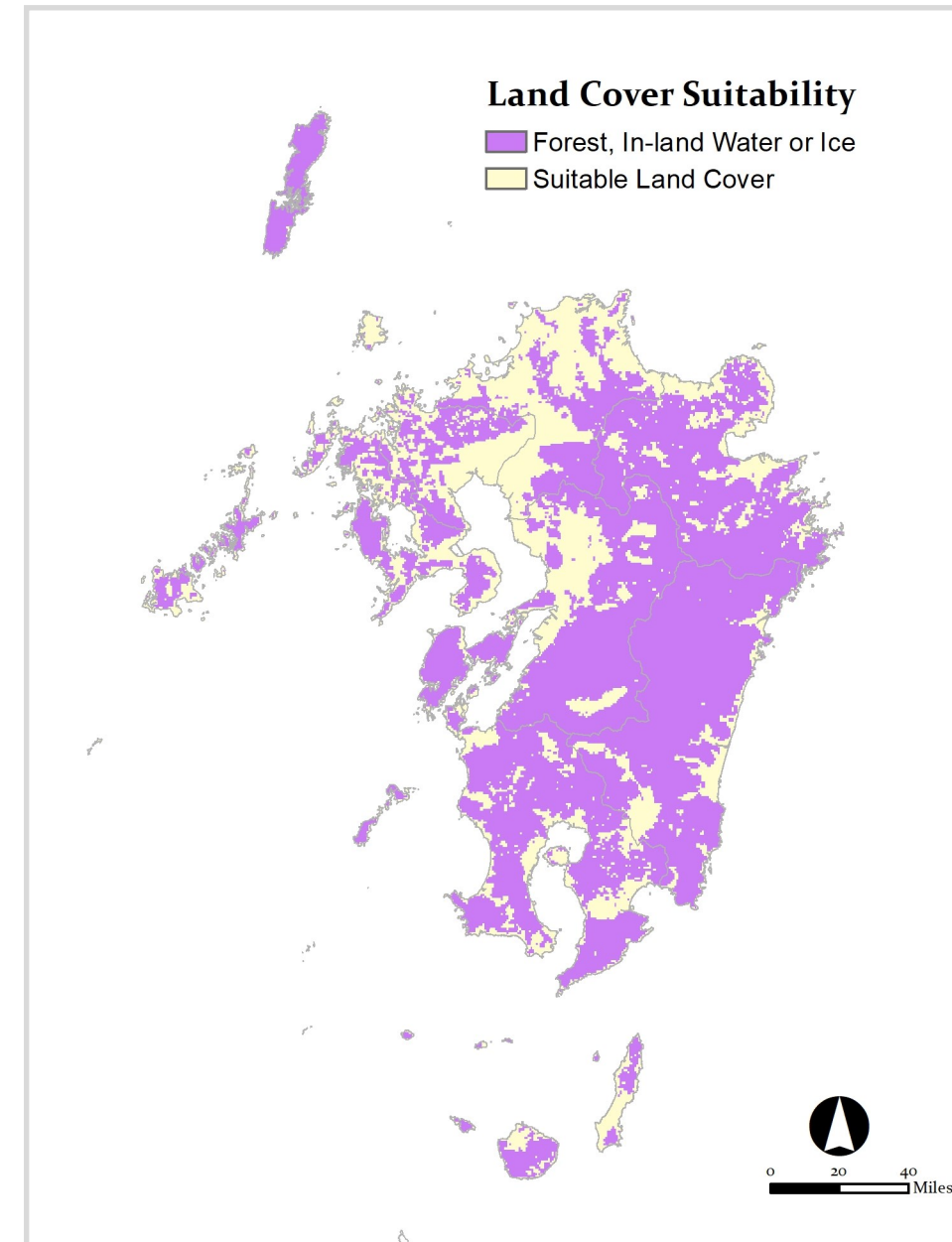
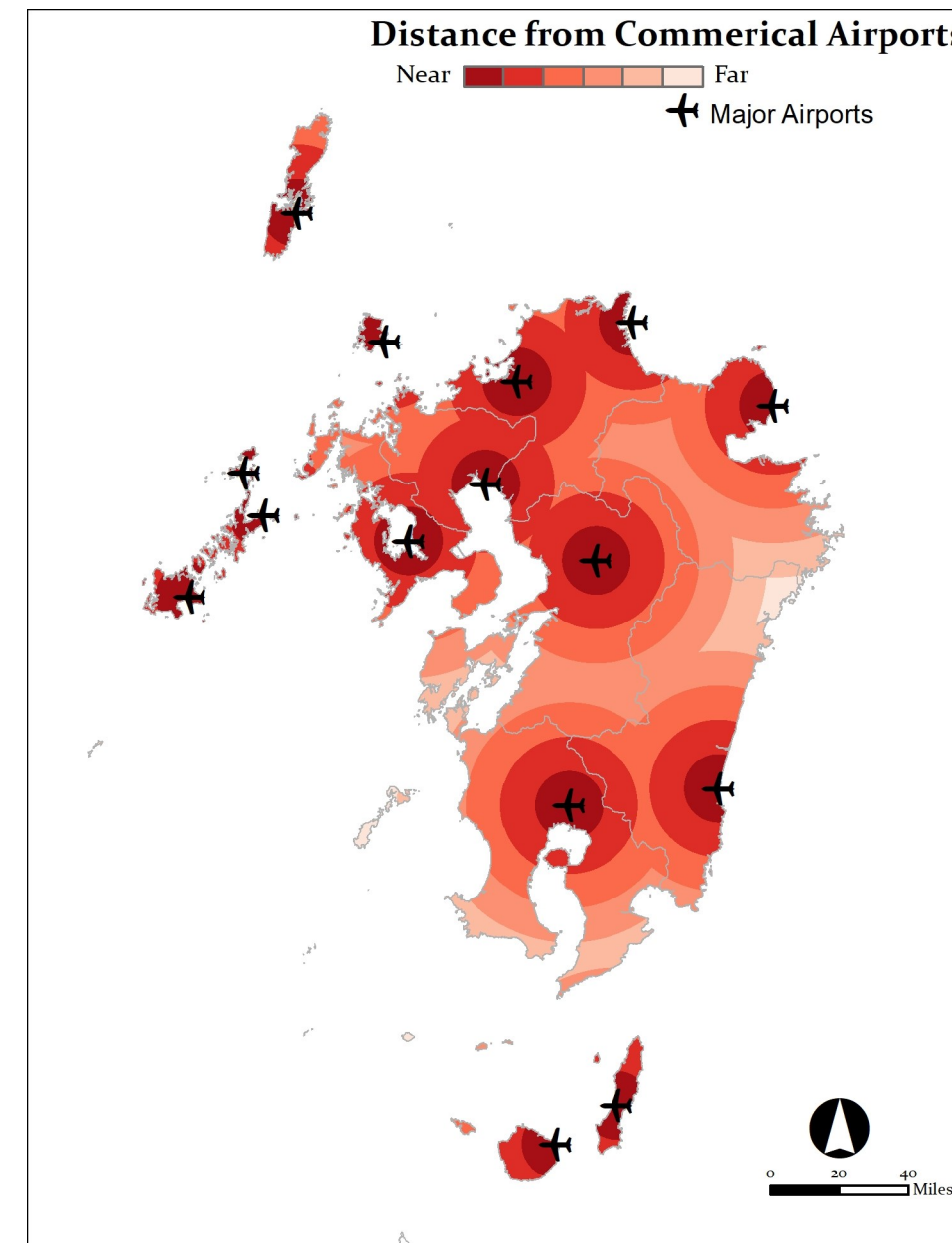


**Road Access** – Accessibility for construction equipment, labor force, and post-construction scale oversized transport. This was ranked (1-6) with a 6 for nearest proximity to a major road within 400 meters and a 1 for the nearest major road exceeding 2000 meters.

**Distance from Population Centers** – An air base is a viable military target, and it is important that it is not located too close to a population center (This study defined a population center as location with a population density above 100 people per 100 square meters). At the same time it is critical to have a local workforce within commutable distance to work and to gain local buy in, and promote economic growth. Utilizing local speed limits an ideal commute distance is 20 miles. Distance from population centers was ranked (1-6) divergently from 10-30 miles with 17.5-22.5



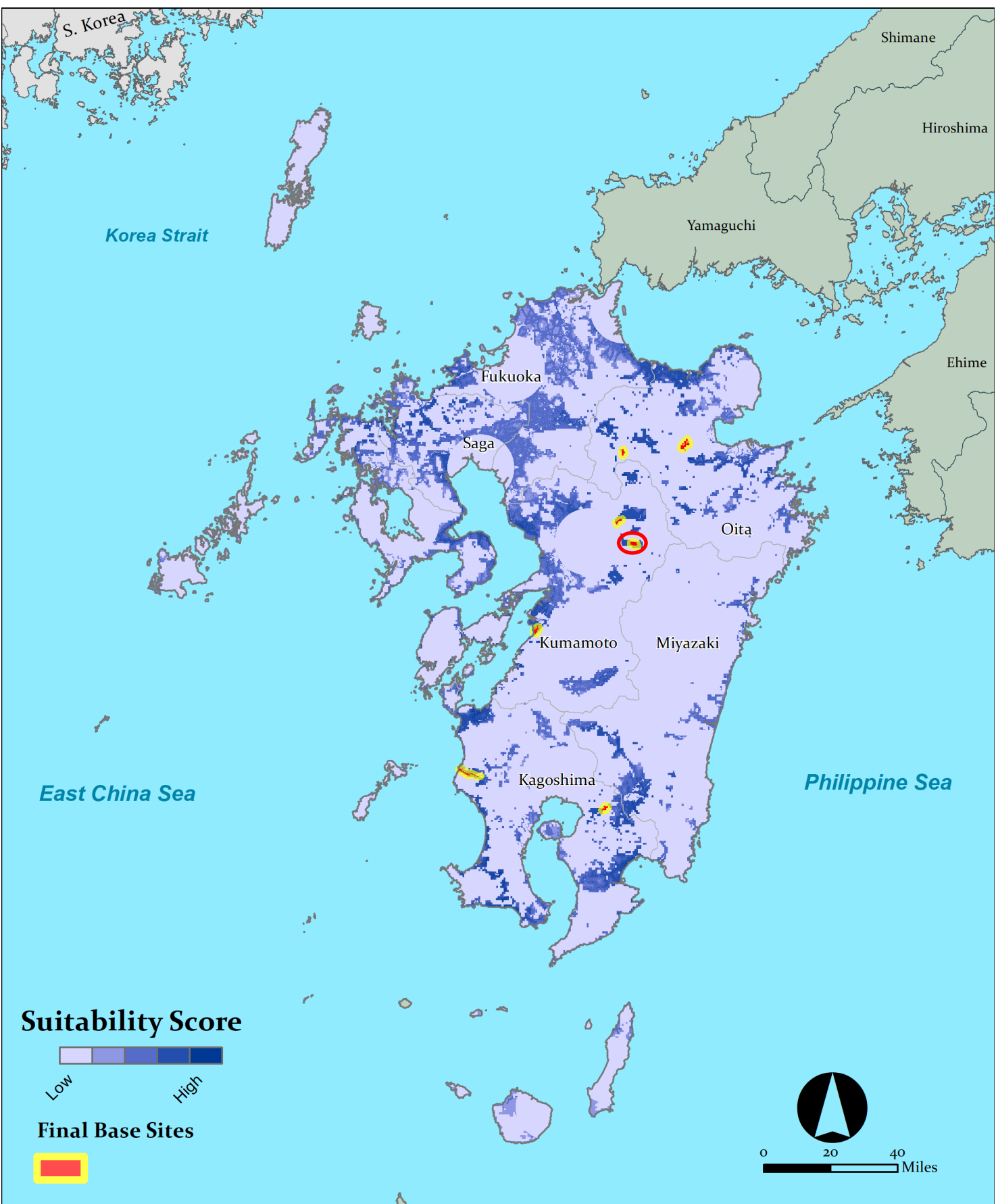
**Proximity to a Commercial Airport** – Proximity to a commercial airport was also a two part factor in this study. Proximity to an airport was ranked (1-6) with the locations farthest from a commercial airport receiving a 6. But critically there was also a binary factor added of any location within 10 miles of an airport deemed not-feasible.



**Land Cover** – For this study, certain types of land cover were deemed not-feasible. Any location with any variety of forest, bodies of water and ice/ snow were deemed not feasible locations

### Project Results & Conclusions

**After** weighing each of these suitability factors, every 30 square meter area of Kyushu island was scored between 0-30 with a highly suitable area receiving a 30. Then utilizing neighborhood tools and region grouping, contiguous areas scoring above 25 larger than 3 million square meters were isolated.



**The final result** found only one of these locations followed the take off cone requirement. The location is by Takamori a small town, with a population of 6,000 people in comparison to 100,000 in Ginowan, Okinawa. It is approximately 20 miles away from the population center of Kumamoto. It is 11 miles from Kumamoto airport and is a 5 minute drive from a hospital. It is bordered by a major road allowing for easy access.

**This study was limited** by many factors, land use data is only available in person in Japan from prefecture governments. Additionally, Okinawa is unique within Japan for it's geographic proximity to the contested South China sea and Taiwan. This project is operating under the presumption that the distance and associated additions of travel times from Okinawa to Kyushu and the approximate increase of 750km distance would not be an operational poison pill. Further research could look into areas in the Philippines & S. Korea, also feasible locations to reduce the burden upon the people of Okinawa.

Potential Takamori Site Score		
Factor	Score	Notes
Distance to Population Centers (1-6)	6	20 Miles
Road Access (1-6)	6	Major Road Parallel
Hosp. Proximity (1-6)	6	1 Mile Away
Airport Proximity (1-6)	2	11 Miles Away
Elevation (1-6)	6	0 Degree Increase
Airport Restriction (x 0-1)	1	Yes At Least 10 Miles Away
Take Off Cone (x 0-1)	1	4 Mile Cone Clear
Total (0-30)	26	