

## Errata

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To: Recipients of MG-888-SRF, *A Question of Balance: Political Context and Military Aspects of the China-Taiwan Dispute*

From: RAND Corporation Publications Department

Date: August 2009

Re: Corrected pages (pp. 62, 66, and 103)

The authors identified errors in the originally published document:

- On pp. 62 and 66 (in Table 4.5), the authors identified U.S. fighters as F/A-18E/F aircraft. In both instances, this should instead be F-A-18C/D.
- On p. 103, two British jumpjets were identified as the *Hermes* and the *Intrepid*; this should instead be the *Hermes* and the *Invincible*.

The posted document has been corrected. These errors do not affect the authors' analysis or conclusions.

borne or dispersed will be pinned on the ground and vulnerable to follow-up attacks. So, the number of shelters on the defender's air bases becomes an important variable.

From open source counts of shelters and examination of unclassified imagery, our base case credits each ROCAF main air base—except Hualien and Taitung—with 50 shelters. Aircraft were not attacked on the ground at Hualien or Taitung in our scenario, as we assumed they would be kept safe in the large underground hangars that have been reported at each location. We also placed 15 shelters at Kadena, but credited Iwakuni with no shelters in the base case. In our “high-shelter” case, we increased the number of shelters to 66 at each ROCAF base, 73 at Kadena, and 36 at Iwakuni, enough to protect all of the deployed fighters

Finally, we ran cases where the U.S. deployed “super shelters” at its two bases, employing barrier walls and other measures to render the vulnerable shelter doors impervious to even very accurate cruise missiles.

### **U.S. Forces Engaged**

We used six levels of U.S. forces and one variant of basing for them. We assessed cases in which two, one, or no U.S. carrier strike groups (CSGs) were engaged, as well as cases with no fighters operating out of Okinawa, one wing of 72 F-15Cs, or one wing of 72 F-22s. To investigate a U.S. strategy that pulls forces out of Okinawa and relocates them further out of harm's way, we also ran a case with 72 F-22s operating from Andersen Air Force Base on Guam.

In all cases where there were U.S. fighters at Kadena, we also flew 36 USMC F/A-18E/F aircraft from Iwakuni Air Base in Japan. These aircraft were committed in the fight over Taiwan; we assumed that Japanese Air Self-Defense Forces (JASDF), while not participating in the cross-strait war per se, nonetheless would protect the national territory of Japan, including Okinawa.

**Table 4.5**  
**First-Day Sorties Flown**

Country	Mission	Type	Sorties	PGMs Delivered
China	Air base attack	Su-30	82	328
		J-10	115	330
		JH-7	44	88
		H-6	50	Iron bombs
		H-6K	46	92
	Other attack	J-8 (adv)	54	108
		J-8	20	40
	Escort	J-8	97	Non-BVR
	Sweep	Su-27/F-11	118	R-77/PL-12
		J-8	172	Non-BVR
<i>Red Total</i>			798	
Taiwan	Air defense	Various	100	AMRAAM, MICA
United States	Air defense	F-22	20	AMRAAM
		F/A-18E/F	96	AMRAAM
<i>Blue Total</i>			216	

NOTES: AMRAAM = advanced medium-range air-to-air missile; MICA = missile d'interception et de combat aérien, or "interception and aerial combat missile."]

**Table 4.6**  
**Example Air-to-Air Engagement Rates**

	Sorties	Shots per Sortie
Red mission		
Ground attack	76	0.05
Escort	24	0.05
Sweep	72	0.40
Blue fighters		
F/A-18	22	1.70
F-22	4	1.50
ROCAF	19	0.70

the exception of the seven Harrier GR.3s hastily deployed to reinforce the jumpjets on the *Hermes* and *Intrepid* and five sorties by Vulcan bombers against targets on and around Port Stanley's airport, no RAF combat aircraft were engaged. The geographical advantage enjoyed by Argentina allowed its otherwise outnumbered and outclassed armed forces to make a go of it against the British.

Of these three lessons, one—the relative proximity of Taiwan to China versus not just the United States proper but also the bulk of its Western Pacific military bases—would seem to weigh in the PLA's favor in the event of a war in the strait. The vulnerability of amphibious forces in the run-up to and during the actual landing operations would appear to favor the defender. The third lesson—the demonstrated lethality of modern ASCMs to warship—will put all participants' surface forces at greater risk than has been seen at least since World War II, and possibly since the great battles between ships of the line during the Age of Sail. We will now turn to assessing how these and other factors could affect the prospects for a successful Chinese invasion of Taiwan.

### **Assessing the Odds: Could the Chinese Invade Taiwan?**

To invade and occupy Taiwan, the PLA must be able to establish a secure lodgment on Taiwan, then subsequently resupply and reinforce it until adequate combat power is available to break out from the beachhead, defeat defending forces, and establish control over the island.<sup>17</sup> While stated simply, this would in fact be a complicated, choreographed, and risky operation. The analysis here will focus on the main element that the first two phases—invasion and buildup/breakout—have in common: the need to safely and repeatedly transit the Taiwan Strait with amphibious assault ships and other vessels. We will use simple “zeroeth-order” calculations to explore how effective

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<sup>17</sup> This resupply need not be limited to over the beach if China can capture a working port early on.