



# *China's Navy: New Abilities, New Options*

*Larry Bond & Chris Carlson  
Historicon 2011*

*Admiralty Trilogy Seminar  
Presented by:  
Clash of Arms Games*





# Overview

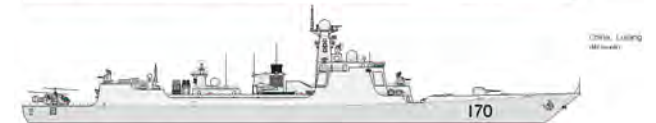
- ◆ **Strategic Situation**
- ◆ **Security Issues**
  - Taiwan
  - Vietnam
  - Japan
  - Korea (North and South)
  - US Influence in the Pacific
- ◆ **Ships**
  - Aircraft Carrier(s)
  - Surface Combatants
  - Gators & Small Stuff
  - Submarines
- ◆ **Aircraft**
- ◆ **Strengths/Weaknesses**
- ◆ **Foreign Assistance**



China, Hainan (138)



China, Jiangnan (136)



China, Luyang (170)



China, Venzhou (168)



China, Jiangwei (530)



China, Anshan (525)



# China's Defensive Perimeter



- ◆ Near term: defend PRC interests out to the First Island Chain
- ◆ Long term: defend PRC interests out to the Second Island Chain



# China's Maritime SLOCs





# PRC Security Issues - Taiwan

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- ◆ **Political prize more than economic or resource goal**
- ◆ **Because of public US commitment, high costs for military action**
- ◆ **Conquest would create more problems than any payoff**
- ◆ **Low probability of military action**
- ◆ **Content to use the diplomatic track as long as Taiwan's domestic policies don't change. ROC Independence movement would change the dynamic, but how hard would the PRC push?**



# PRC Security Issues - Korea

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- ◆ **North Korea is the problem, not the South.**
- ◆ **Economic drain and political liability - Refugee problem**
- ◆ **Unpredictable, unstable political system**
- ◆ **Greatest risk is of unilateral action by Kim(s), destabilizing region, requiring Chinese action**
- ◆ **Scenario:**
  - 1) **Breakdown in political control caused by succession crisis, famine, even a natural disaster.**
  - 2) **Widespread disorder causes humanitarian crisis. Kim, of course, does nothing. Massive refugee problem in border area.**
  - 3) **South Korea moves north.**
  - 4) **You're Hu Jintao. It's three AM. What do you do?**



# PRC Security Issues - Japan

◆ Economic power, US ally, but Japan is big trading partner with China, strong cultural ties. China also has a long memory regarding Japan in WW II.

◆ China, Japan and Taiwan all claim Di-aoyu/Senkaku Islands.

◆ PRC fishing boat collided w/2 Japanese Coast Guard ships Sep 2010, Japan took crew into custody, confiscated trawler. Major repercussions in both countries.





# PRC Security Issues - Japan

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- ◆ **Current dispute is over fishing, but there may be oil, although no survey has been made.**
- ◆ **Most advanced military in Asia, but Japanese security depends on US alliance.**
- ◆ **Japanese staying power, punch, and range also an issue.**
- ◆ **Joint US-Japanese exercises in December will feature forces retaking a small island seized by a hostile power.**





# PRC Security Issues - Vietnam

- ◆ PRC, Vietnam, the Philippines, Malaysia, Brunei and Taiwan all claim territories in the South China Sea. China has described the South China Sea as a “core interest.”

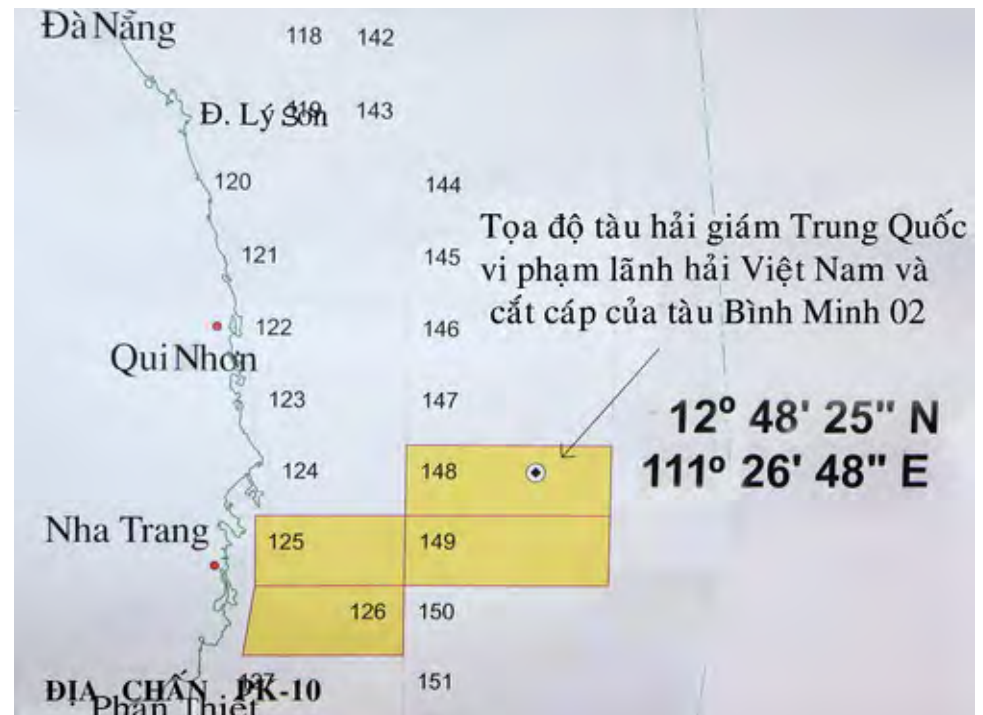




# PRC Security Issues - Vietnam

## History:

- ◆ 1974: China captured the western Paracels from Vietnam.
- ◆ 1979: PRC invaded Vietnam to “punish” it. Skirmishes until 1989.
- ◆ 1988, Johnson South Reef Skirmish, over 70 Vietnamese killed.
- ◆ Recent Harassment of Vietnamese vessels
  - ◆ 26 May 11: Three PRC fishing enforcement boats interfere with oil exploration ship *Binh Minh 02*. Similar incident several days later.
  - ◆ Large numbers of Chinese fishing boats in Vietnamese waters. Vietnam considering escorts.
- ◆ Hacking of Vietnamese websites. PRC Flags and other graffiti left behind.





# PRC Security - US Influence

- ◆ **PRC is sensitive to US surveillance.**
  - ◆ **Mar 01: Frigate confronted USNS *Bowditch* in the Yellow Sea**
  - ◆ **Apr 01: J-8 collided with EP-3 surveillance plane over Hainan**
    - ◆ **Mar 09: Vessels harass USNS *Impeccable* in South China Sea**
- ◆ **US strengthening ties with Vietnam**
- ◆ **US bases in the area allow rapid intervention**
- ◆ **US “encirclement” constrains Chinese actions**
- ◆ **China wants to change the status quo, the US wants to preserve it.**

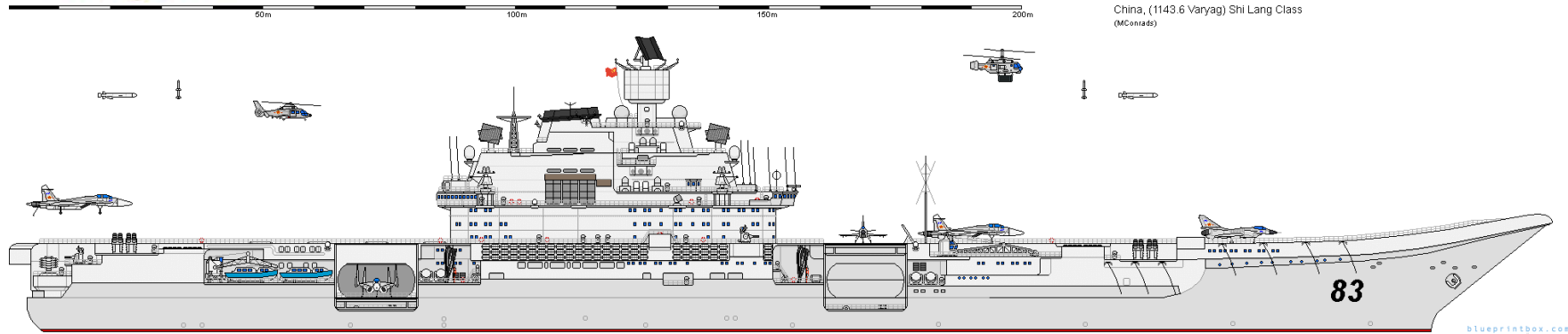


# PLAN Fleet Structure





# Shi Lang (or “Lang Li”)



**Ex-Russian Project 1143.5 Ore** **CV**

**Displacement:** 55000 ltshp **In Class:** 1

**Size Class:** A/Large **In Service:** 2012?

**Electrn Cnt:** 3rd Gen J&D **Acoust Cnt:** xxx

**Propulsion:** Steam **Crew:** ???

**Signature:** Large/Loud **Armor Rating:** 0

**Weapons:** **ROF**

PB&P/SB&S/P&PQ/S&SQ(18)4 FL-3000N **D**

P&PQ/S&SQ (R)2 Type 1030 30mm **C**

2 Elevators **--**

Arresting Gear **--**

**Sensors:** **ESM:** 3rd Gen

Dragon Eye, Sea Eagle **J**

Sonar? **K**

**Air Group:**

J-15?, Ka-28, Ka-32?

**Remarks:**

*Shi Lang. Varyag* purchased from Ukraine in 1992, refurbished at Dalian since 2002. To be used as developmental platform for PRC carrier technology. Special damage modifier of -10% for Russian surface ship design.

**Damage & Speed Breakdown:**

<b>Dam Pts:</b>	0	272	545	817	980	1089
<b>Surf Speed:</b>	30	23	15	8	0	Sinks

Excellent Site: <http://www.jeffhead.com/redseadragon/varyagtransform.htm>



# Carrier Questions

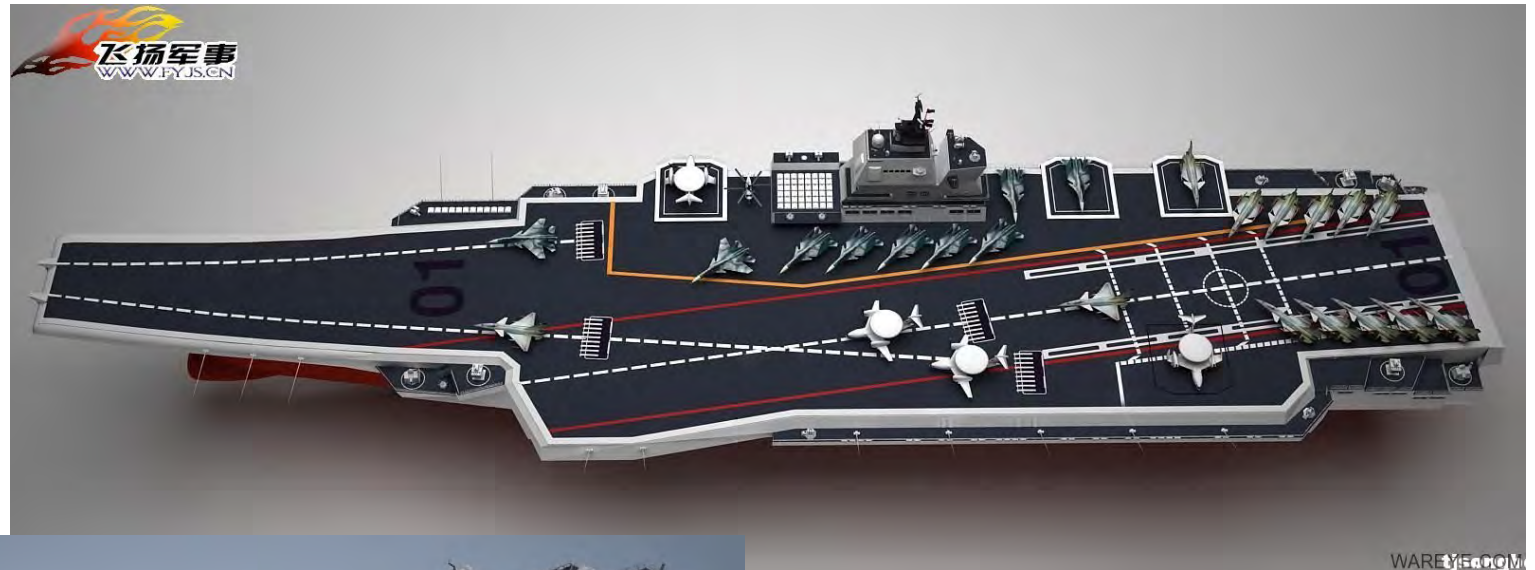
- ◆ What is her material condition?
- ◆ Testbed, training carrier, or full up warship?
- ◆ What type of propulsion plant?
  - *Varyag* originally fitted with a steam plant
  - Marine diesels are a possibility
  - Drives her ability to launch loaded aircraft
- ◆ PLAN Carrier Doctrine?
  - Soviet or US or something new?
- ◆ What will the next one look like?





# PLAN's Future?

**Future  
carrier  
concept**



**Cruiser  
concept**

*From Pakistani Defense Forum*



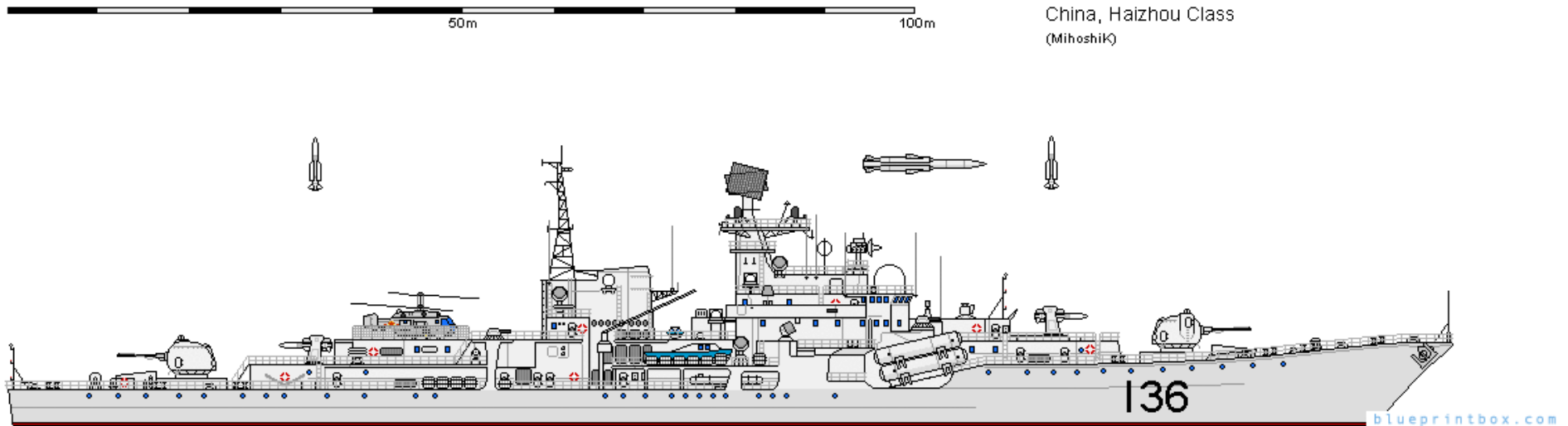
# Major Surface Combatant Development

<u>Comm</u>	<u>Class</u>	<u>Units</u>	<u>Notes</u>
<b>Destroyers</b>			
1955	Russian Pr. 7 [Gordy]	4	Ex-Russian units ("Anshan")
1972	Type 051 [Luda I]	15	Copy of Kotlin w/HY-2 missiles
1987	Type 051M [Luda V]	2	Modernized Luda Is w/Helo pad
1991	Type 051G [Luda III]	1	CSS-N-4 Sardine missiles replace HY-2
1993	Type 051 Kaifeng [Luda IV]	1	CSS-N-8 Saccade missiles replace HY-2
1993	Type 052 [Luhu]	2	More modern design, mix of foreign weapons and copies.
1999	Type 051B [Luhai]	1	Slightly improved Luhu
<b>Guided-Missile Destroyers</b>			
2000	Russian Pr. 965E	2	Existing-construction <i>Sovremennyys</i> purchased by PRC
2004	Type 052B [Luyang I]	2	Fitted with Russian SA-N-7B
2004	Type 052C [Luyang II]	2 + 4	Uses HHQ-9 SAM, derived from SA-N-6 but different seeker
2006	Type 051C [Luzhou]	2	Luhai fitted with Russian S-300FM [SA-N-20] SAMs
2006	Russian Pr. 956EM	2	Improved <i>Sovremennyys</i> with SA-N-7B, purpose-built
<b>Frigates</b>			
1975	Type 053H [Jianghu I]	11	First PRC-designed frigate class, optimized for ASuW
1975	Type 053H1 [Jianghu II]	9	Better 100mm with radar(!) fire control
1986	Type 053H2 [Jianghu III]	3	Enlarged hull, more modern weapons, YJ-81
1993	Type 053HT-H [Jianghu IV]	1	Helo pad replaces aft weapons, HY-2
1993	Type 053H1G [Jianghu V]	6	Repeat builds of earlier Jianghus, HY-2
1991	Type 053H2G [Jiangwei I]	4	Multi-role design, YJ-81 and HQ-61
1998	Type 053H3 [Jiangwei II]	10	Improved missile fit YJ-83, HHQ-7A [FM-80]
2005	Type 054 [Jiangkai I]	2	Multi-role design, YJ-83 and HHQ-7B [FM-90]
2008	Type 054A [Jiangkai II]	8+4	Multi-role design, YJ-83 and HHQ-16 VL SAM





# Project 956E Sovremenny

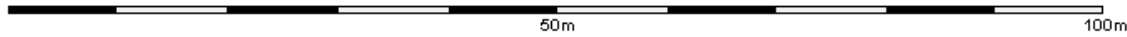


- ◆ *Hangzhou 136, Fuzhou, 137*
- ◆ Incomplete units #19 and # 20 of Russian *Sovremenny* class purchased by China Jan 98
- ◆ Yozh [SA-N-7B Grizzly] SAMs, (19 nm), P-270 Moskit-M (3M82) [SS-N-22 Mod 2] (86 nm)
- ◆ First ships in PLAN with area AA capability
- ◆ Most capable ships in the PRC Navy when they were delivered in 2000

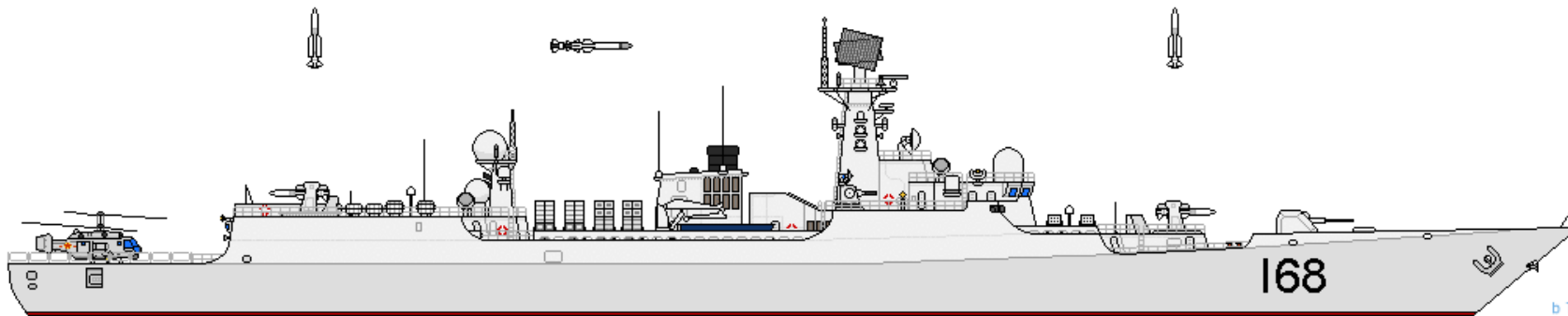
**2000**



# Type 052B [Luyang I]



China, Yantai Class  
(MConrads)



[blueprintbox.com](http://blueprintbox.com)



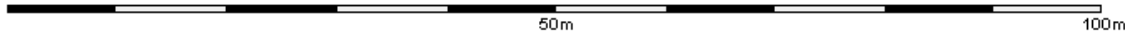
[www.china-defense-mashup.com](http://www.china-defense-mashup.com)

- ◆ *Guangzhou 168, Wuhan 169*
- ◆ New builds ordered by PRC in 2002
- ◆ First locally-built "G" combatant
- ◆ Yozh [SA-N-7B Grizzly] SAMs (19 nm), YJ-83 (135 nm)

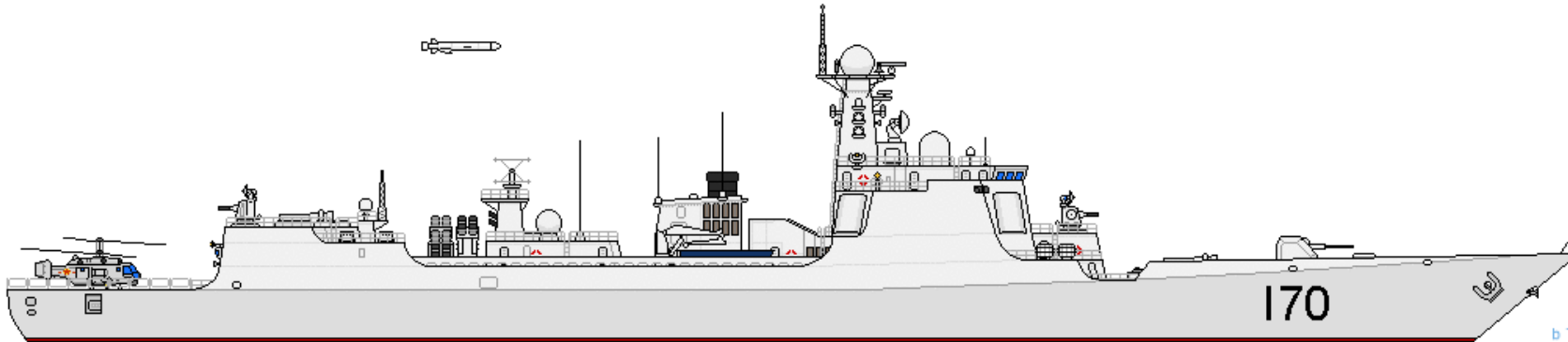
2004



# Type 052C [Luyang II]



China, Luyang Class  
(MConrads)



[blueprintbox.com](http://blueprintbox.com)

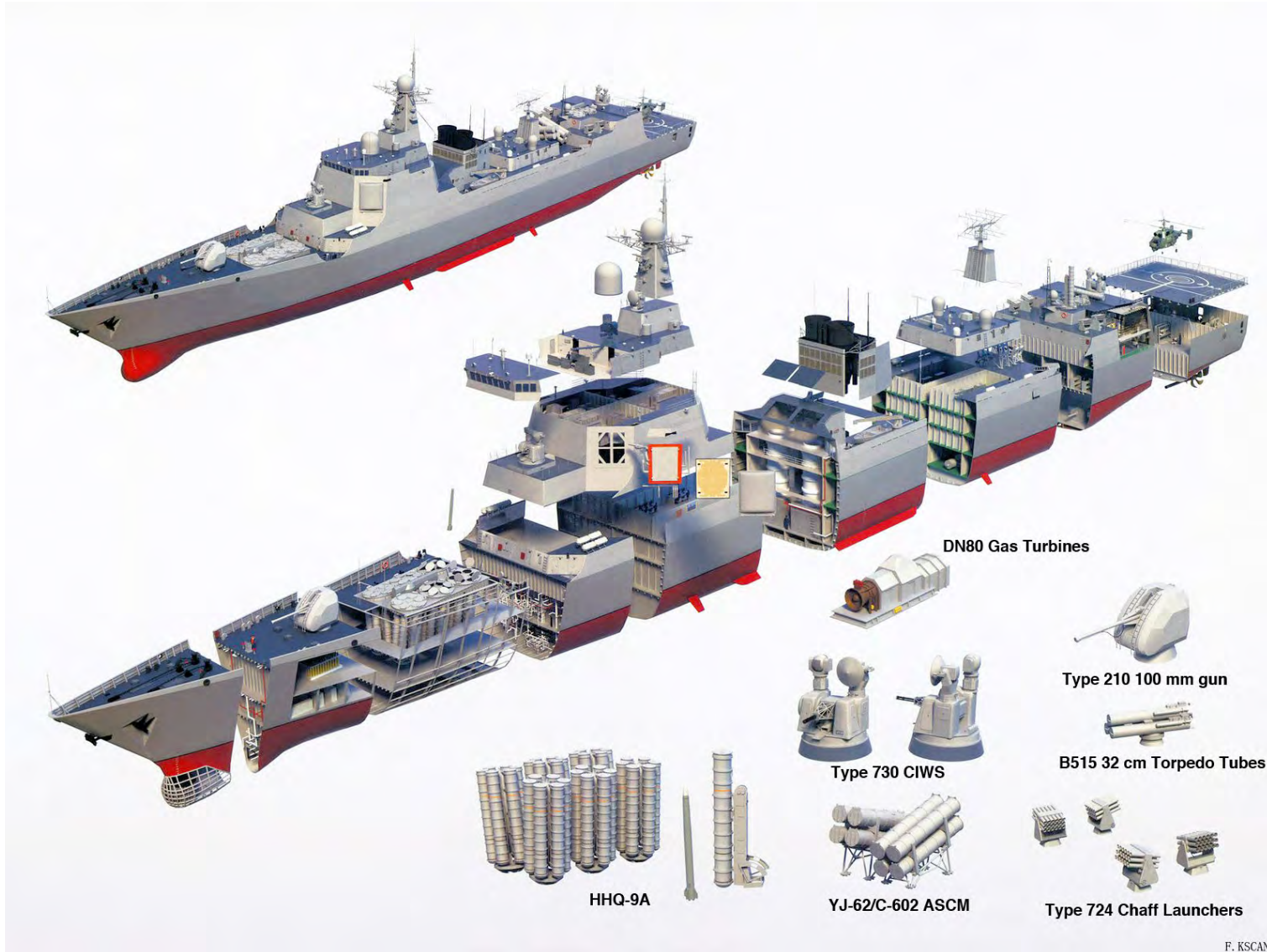


- ◆ *Lanzhou 170, Haikou, 171*
- ◆ HHQ-9A SAMs (68 nm), YJ-62 (150 nm)
- ◆ Same hull as 052B, but longer-range SAM
- ◆ Built at same time as 052B. Why?
- ◆ Four more planned

2004



# Type 052C [Luyang II]





# Type 051C [Luzhou]

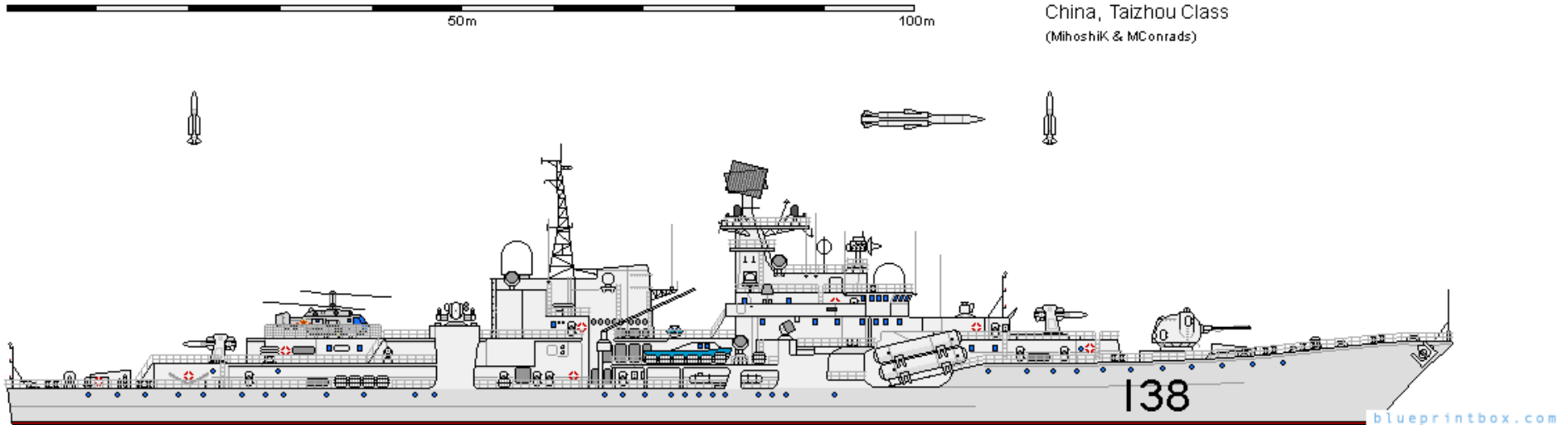


- ◆ *Shenyang 115, Shijiazhuang 116*
- ◆ Adaptation of *Luhai* design to multi-role DDG
- ◆ Upgraded SSMs, two Type 730 systems replacing 4 AK-630s, Rif-M [SA-N-20] SAMs (81 nm), YJ-62 SSMs (150 nm)
- ◆ Most capable area AAW unit in PLAN fleet, but only two built.

2006



# Project 956EM Sovremennyy

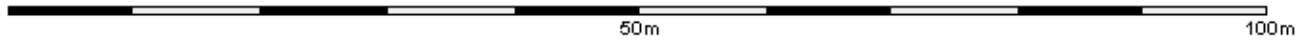


- ◆ *Taizhou 138, Ningbo 139*
- ◆ New builds ordered by PRC in 2002.
- ◆ Upgraded SSMs, two Kashtan systems replacing 4 AK-630s
- ◆ Yozh [SA-N-7B Grizzly] SAMs, (19 nm)  
3M80MVE Moskit (65 nm/108 nm)
- ◆ Why not just build more Type 052Cs?

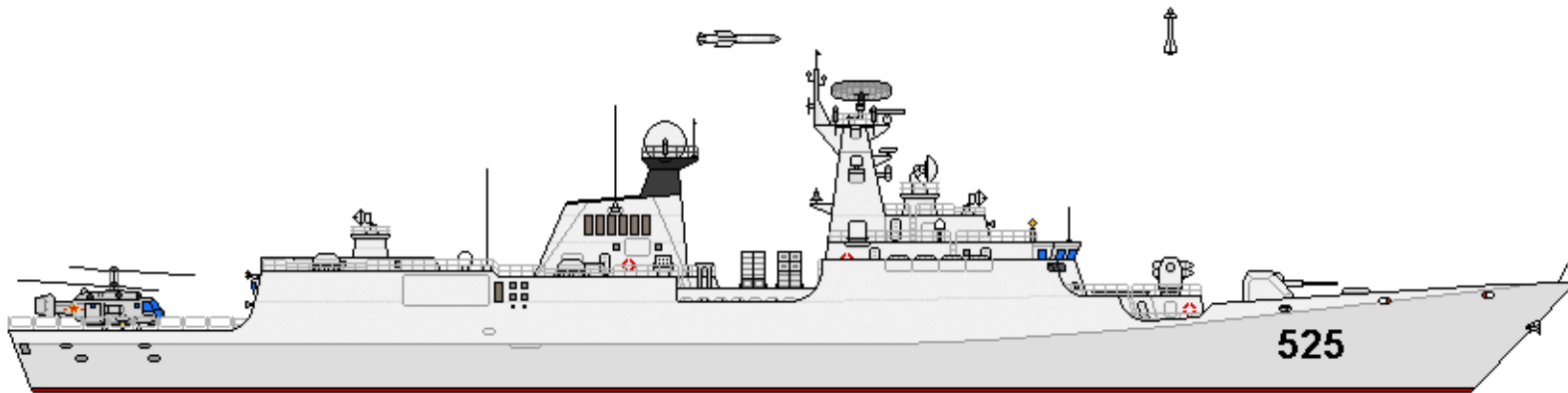
2006



# Type 054 [Jiangkai I]



China, Maanshan Class  
(MConrads)



[blueprintbox.com](http://blueprintbox.com)



- ◆ *Ma'anshan 525, Wenzhou 526*
- ◆ First new hull design in 30 years
- ◆ General-purpose frigate armament
- ◆ HHQ-7B (Crotale clone) is only good for point defense

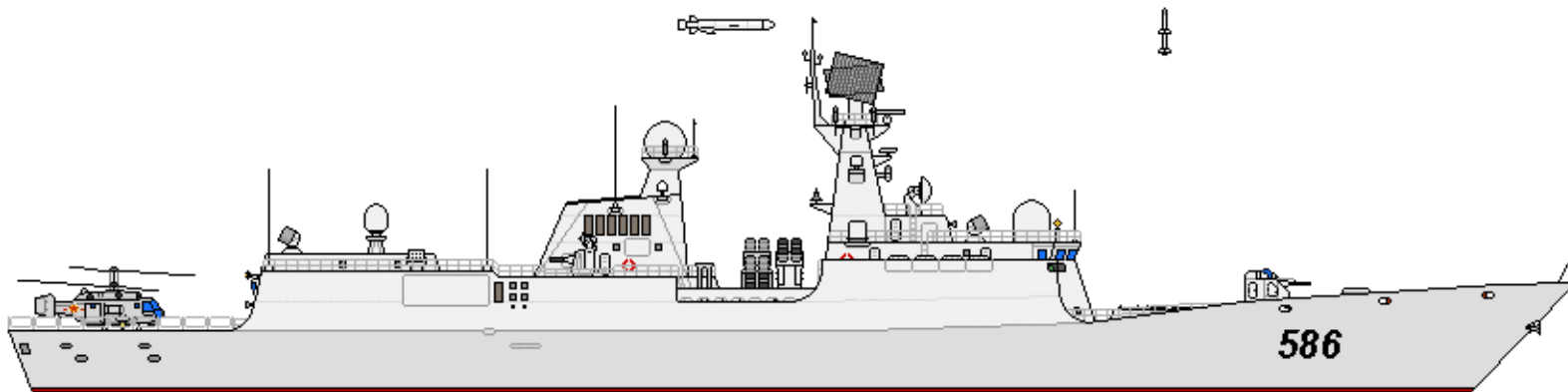
**2005**



# Type 054A [Jiangkai II]



China, Jiangkai Class  
(MConrads)



blueprintbox.com



Caohu

- ◆ 13 in service, 2 building
- ◆ Improved weapons:
  - AK-176M 76mm gun vice Type 210
  - HHQ-16 (SA-N-7C) replaces HHQ-7B
  - Type 730 vice AK-630
- ◆ FF becomes FFG
- ◆ They like this class

2008





# Type 056 Corvette

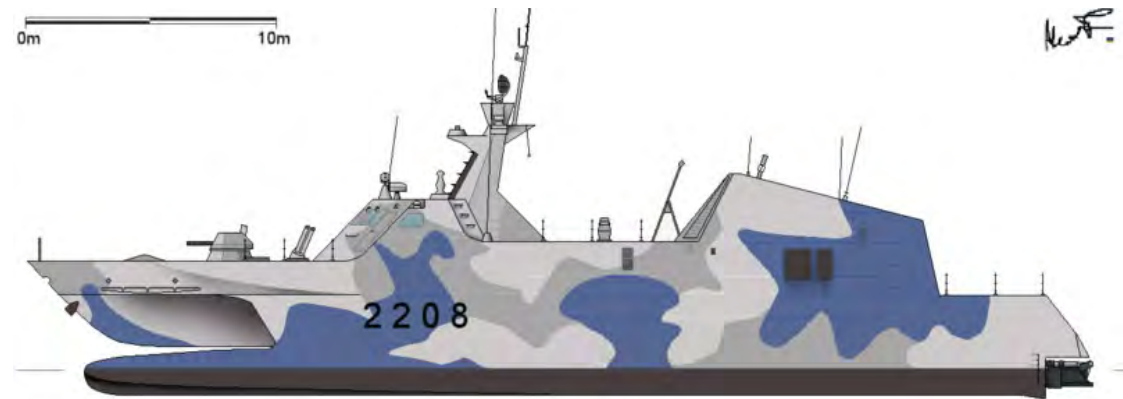


- ◆ 1,000 - 1800 tons, AK-176M 76mm forward, 2 x 2 YJ-83, HQ-10/FL-3000N RAM clone aft, pad but no hangar for Zhi-9
- ◆ Probable replacement for Type 037 *Haiqing/Haiju/Hainan*
- ◆ Not as capable as Type 054A, but less expensive
- ◆ Designated as an Offshore Patrol Vessel (OPV)

2012?



# Type 022 [Houbei]



Type 022  
PLAN FAC



- ◆ License-produced AK-630 30mm, FLS-1 launcher with QW series MANPADs, & eight YJ-83 SSM
- ◆ Shaped hull for reduced signature, but the design includes a number of radar eyesores
- ◆ 80+ in service

2004



# Type 071 [Yuzhao]



- ◆ *Kunlun Shan 998, Jiaggang Shan 999 (prob)*
- ◆ Largest Chinese-built hull
- ◆ Can carry 4 Type 726 [Yuyi] LCAC
- ◆ Older defensive weapons:  
AK-176M 76mm, 4 AK-630s
- ◆ More will be probably be built, with upgraded defensive suites

2008



# Type 039G Song



- ◆ 13 units built
- ◆ Hull 1 experienced significant delays after launch in 1994
- ◆ First class to use anechoic coating
- ◆ First class to launch YJ-82 while submerged
- ◆ Foreign equivalent: French Agosta with updated electronics

**2001**



# Project 636E Kilo



- ◆ First four units ordered in 1993 and delivered between 1995-98 are Project 877EKM
- ◆ Eight additional Project 636EM units ordered in 2002
- ◆ Quietest units in the PLAN inventory
- ◆ Modified to fire SS-N-27B Sizzler (Novator Alpha) antiship missiles

2004



# Type 041A Yuan



- ◆ Seven units built thus far
- ◆ More hydrodynamic hull, quieter than Type 039
- ◆ Possible air independent power system, Stirling engines have been cited in Chinese press releases and professional journals
- ◆ YJ-82 antiship missile capable
- ◆ Foreign equivalent: Similar to Amethysté modernization of *Rubis* class

2006



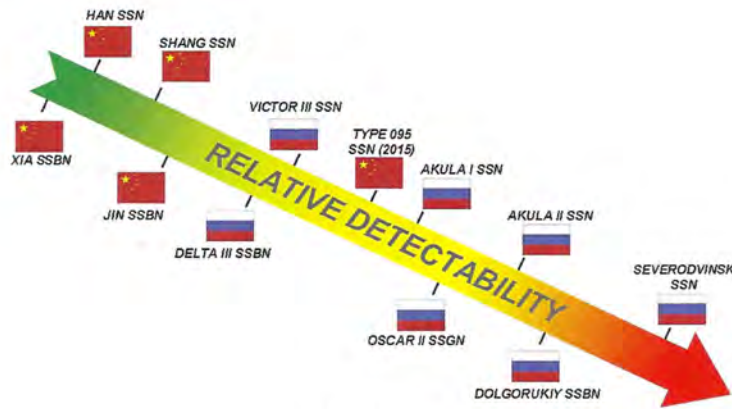
# Type 041B(?) Qing



- ◆ Launched in September 2010
- ◆ Merging of features from *Yuan* and Kilo
- ◆ Equipped with a Russian style escape chamber in the sail
- ◆ Probably has Stirling engine AIP system
- ◆ Sail resembles Golf SSB, one professional journal article indicates there are ten VLS cells in the sail
- ◆ Cell size suggests C705 type missile (40 nm range)
- ◆ Quieting? **2012? 2015?**



# Type 093 Shang



- ◆ Second generation nuclear attack submarine
- ◆ Quieter than Type 091 Han class, but not significantly
- ◆ Sonar and weapons fit appears to be similar to Type 041A
- ◆ PLAN apparently is not happy with the design, only two built; numerous references to Type 095 design being under construction

Louder

Quieter

2006





# Type 094 Jin



- ◆ Second generation nuclear ballistic missile sub
- ◆ Quieter than Type 092 Xia class, but not significantly
- ◆ Sonar and weapons fit appears to be similar to Type 093, however, the Type 094 has a Russian styled towed array deployment tube on the upper rudder
- ◆ JL-2 status still blurry, numerous test launch failures have delayed entry into the fleet
- ◆ Currently two, possibly, three hulls have been completed, another three are expected

2007



# Is This Chinese Aviation Technology?

*Don't you believe it!*





## These were first-line aircraft in the early 1990s



作品名称: 天马行空 作者: Songbird

Email: [songbird76@fox.com](mailto:songbird76@fox.com)

PChome 相簿



# Combat Aircraft Development

<u>Name</u>	<u>In service</u>	<u>Notes</u>
<b>Fighters</b>		
J-5 Fresco	1956	MiG-17F
J-6 Farmer	1958	MiG-19S [Farmer] built from kits, built through 2005
J-7 Fishbed	1967	MiG-21F [Fishbed C], built through 2008
J-8 Finback	1980	PRC-designed interceptor. Think “twin-engine MiG-21”
J-9	--	Canceled interceptor, failed design
J-10 Vigorous Dragon	2004	Multirole fighter, development started in 1988
J-11 Flanker	1998	License-built Su-27SK
J-11B Flanker	2006?	Unlicensed copy of Su-27
J-15 Flying Shark	2016?	Carrier-capable Flanker
J-20	2020?	Multirole stealthy(?) fighter
JF-17 Thunder/FC-1	2006	Joint PRC/Pakistan project
<b>Bombers</b>		
H-5 Beagle	1950s	About 400 Il-28s sold to PRC, license-built as Hong-5 from 1965.
H-6 Badger	1958	Tu-16 cloned as Hong-6 from 1959
H-6D	early 80s	Antiship missile carrier
H-6K	2009!	Modernized
<b>Attack</b>		
Q-5 Fantan	1970	Heavily modified MiG-19, internal bay
JH-7 Flounder	1995	All-weather striker
JH-7 Block 2	2002	Improved radar and weapons
JH-7A Flounder	2004	Deep upgrade
K-8 Karakorum	1994	Joint PRC/Pakistan project



# J-11 Flanker



- ◆ Most powerful fighter in PLAAF/PLANAF. The “High” in the High-Low mix
- ◆ 24 J-11, then copied as the J-11B, further developed as J-15
- ◆ China is also purchasing high-end Su-30MK2, but no license-builds!

1998



# J-10 Vigorous Dragon



- ◆ Extended development, program started in the 1980s
- ◆ Israeli Lavi assistance after 1987 was essential
- ◆ In the F-16C/D class, which entered service in 1984
- ◆ “Low” end of High-Low mix

**2004**



# J-20



- ◆ First Flight Jan 2011
- ◆ Low Viz or 1st Gen Stealth?
- ◆ Avionics?
- ◆ Engines?
- ◆ Supercruise?
- ◆ Internal Bays?

2020?



# KJ-2000 Mainring



- ◆ Development started after Phalcon deal killed in 2000.
- ◆ Converted Il-76 airframes, PRC-built (active?) phased array radar
- ◆ KJ-200 program puts same radar on Y-8 (An-12 Cub) airframe, later on the Y-20?
- ◆ C<sup>3</sup> facilities? Has SATCOM antenna

2006





# PLAN Strengths/Weaknesses

## Bad at:

- ◆ ASW
- ◆ Submarine Warfare

## Good at:

- ◆ Numbers
- ◆ ASuW
- ◆ Coastal Warfare
  
- ◆ Compared to US?
- ◆ Compared to neighbors?

## Improving at:

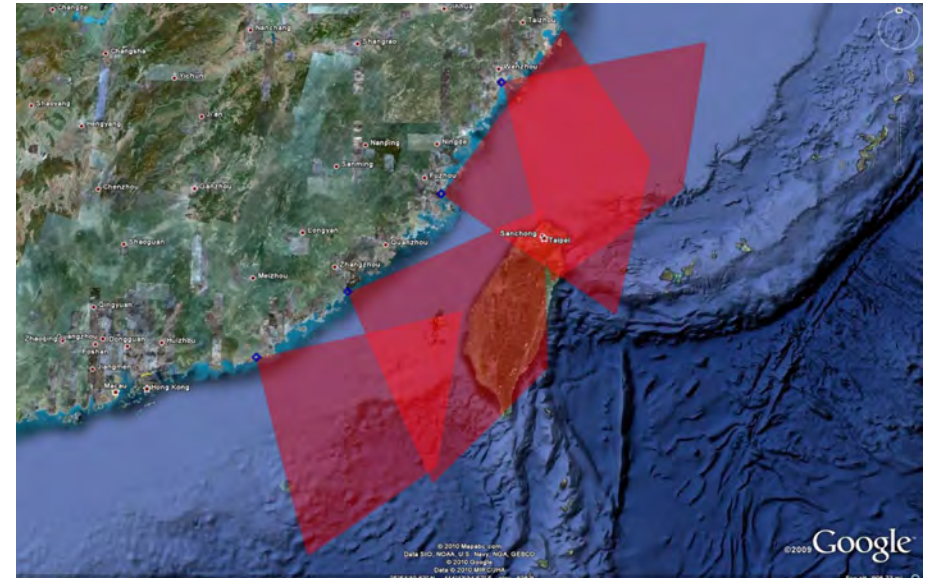
- ◆ AAW
- ◆ EW
- ◆ Command and Control





# OTHT For Coastal ASCMs

Shencheng coastal OTH facility



- ◆ Possible Russian Podsolnukh-E design
- ◆ Surface wave propagation path
- ◆ Range 200 - 300 km (108 - 160 nm), depends on contact size
- ◆ Can track up to 100 contacts



# Mobile Coastal Cruise Missiles



C602

- ◆ All batteries and many sensors are mobile
- ◆ C602, YJ-82
- ◆ HY-2s in fixed sites are gone
- ◆ 130mm guns as well
- ◆ Exercises



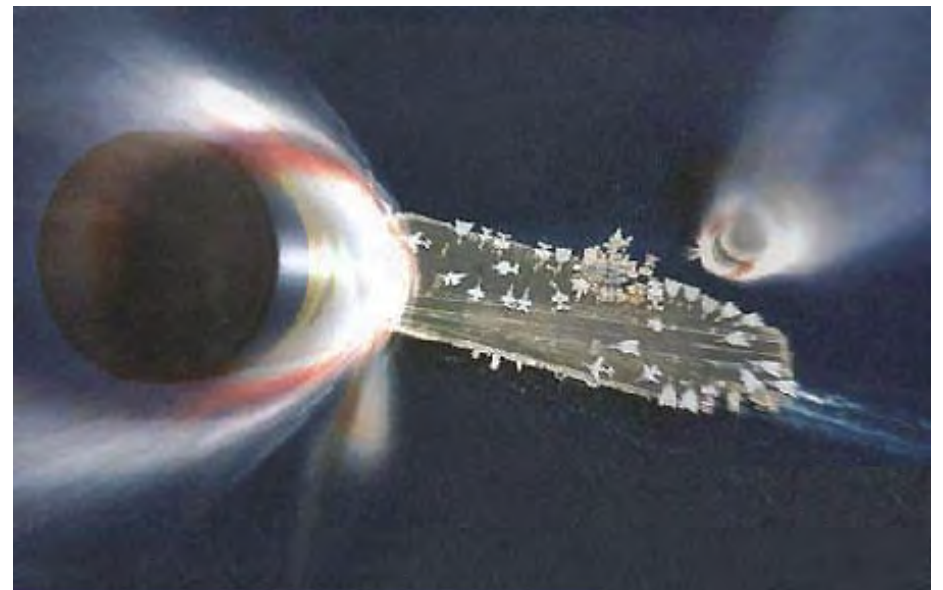
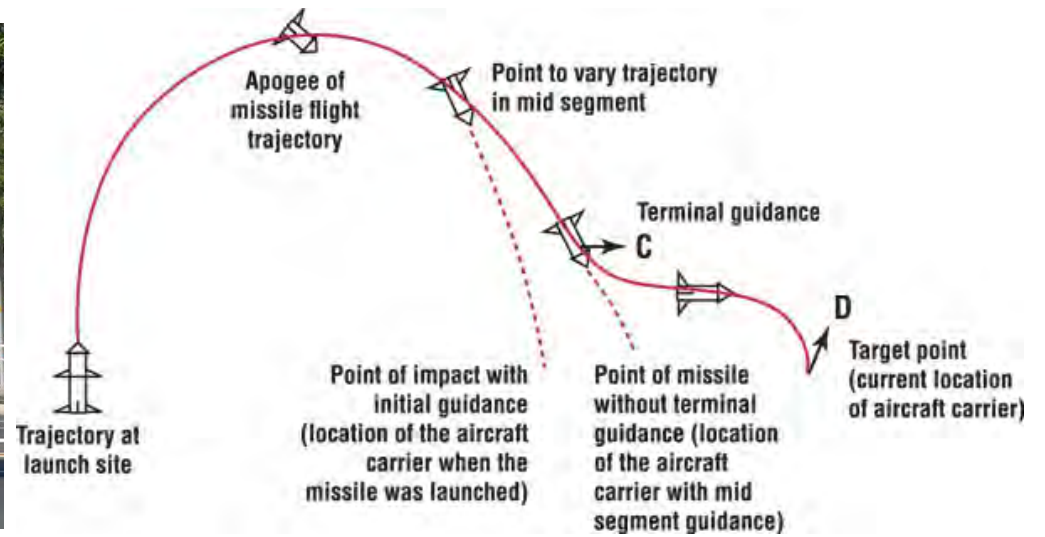
# OTHT For Long-Range ASBM



- ◆ **Over-the-horizon backscatter radar**
- ◆ **Radar beams are bounced off the ionosphere**
- ◆ **Range out to perhaps 3000 km (1620 nm)**
- ◆ **Originally designed to detect aircraft**
- ◆ **Surface ships are harder - much less doppler**
- ◆ **Not accurate enough for targeting**



# DF-21D Mobile ASBM





# Foreign Assistance

- ◆ **Best weapons are still license-built or clones of Russian systems**
  - Sovremennyy, Kilo, Flanker
  - HHQ-9 (SA-N-6), HQ-16 (SA-N-7C), SA-N-7B, SA-N-20
- ◆ **Most combat and service aircraft are Russian clones or derivatives**
- ◆ **Israel**
  - J-10, Attempted Phalcon sale, PL-8
- ◆ **France**
  - Crotale, 100mm gun
- ◆ **Netherlands**
  - Type 730
- ◆ **Espionage is important source**
  - FL-3000N (US RAM), Patriot technology
- ◆ **Even with help, Chinese technology still 15 - 20 years behind US**





# Questions?

## 未来海上力量

(军事爱好者高军翔绘制)





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