

NAVY NEWS WEEK 10-2

5 March 2018

Winter in the Frisia for Culdrose Sea King on its final mission over Europe

22/02/2018

For the last time a Royal Navy Sea King has appeared in European skies after completing its final mission on the Continent.



For two weeks, a helicopter from [849 Naval Air Squadron](#) at [Culdrose](#) has been directing the actions of supersonic F-16 jets over the North Sea and northern Holland – a key stepping stone for working with the UK's new F-35 stealth fighters in a couple of years time. It's the task of 849 with their distinctive radar-equipped helicopters to scour the skies for threats to a naval group – and to direct interceptors such as the F-16 Falcons in for the kill if necessary. It took the veteran helicopter eight hours to cover the 500 miles from its base in western

Cornwall to Leeuwarden in Frisia, north-eastern Netherlands. A 40-strong detachment of air and ground crew was dispatched to the Dutch Air Force Base for Exercise Skinners' Gold 4 – an exercise the squadron has attended in previous run-outs. The [Sea King Mk7](#) flew eight night missions with its observer/radar operator in the back of the helicopter choreographing the movements of up to four Dutch jets at a time either using voice commands (English is the common language of the skies) or by using the military's data-sharing system, Link 16. The Brits guided their Dutch colleagues to intercept up to half a dozen 'enemy' jets at a time – which proved to be an invaluable training for 849, particularly as the scenarios played out over Dutch and North Sea skies could not to be recreated back in the UK. It all helps pave the way for the Sea King's replacement, Crowsnest – a [Merlin Mk2](#) helicopter fitted with a similar, but more modern radar/sensor suite which will operate from the flight decks of new carriers [HMS Queen Elizabeth and Prince of Wales](#). The Brits were hosted by 322 'Polly' Squadron (after a parrot mascot they received from London Zoo 70 years ago) and accommodated in a hardened bunker next to the Dutch F16 HQ, which spared them some of the cold temperatures (which hovered around zero for most of Skinner's Gold). The weekend break between the two weeks of the exercise allowed most of the team to explore the Netherlands, many of the engineers and aircrew heading to Amsterdam just a couple of hours away from the air base. *"It's important that we get these opportunities to relax and experience a different culture, especially for the more junior members of our detachment,"* said observer Lt Ben Selwood. *"For them to see that the Royal Navy is not all about hard work is invaluable and has provided a good chance for them to bond with those they work with outside of the often hectic work environment."* With the exception of a couple of Baggers – the name comes from the trademark radar sack/bag on the side of the fuselage – operating in the Middle East, the fortnight in Leeuwarden was the last overseas detachment for the squadron. The helicopters are due to be retired in September, bringing the curtain down on 49 years' service with the [Fleet Air Arm](#). To put that into perspective, it's the equivalent of a Spitfire flying on front-line duties for the RAF in 1987...

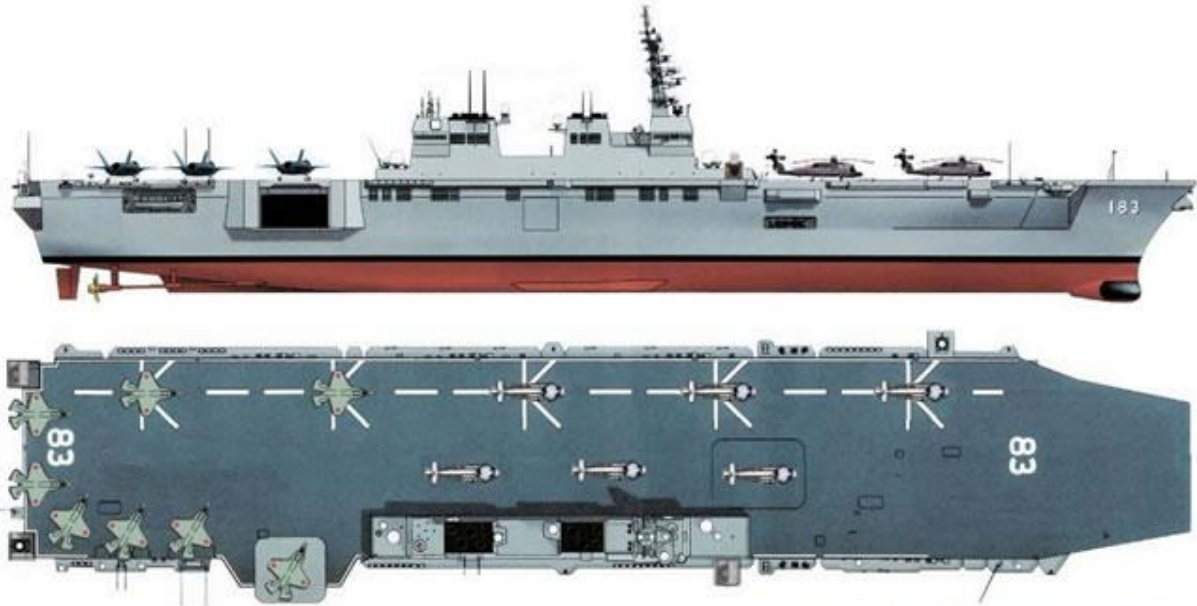
Source: <https://www.royalnavy.mod.uk>

Izumo-Class Helicopter Destroyer

Type:	Helicopter Carrier
Builder:	Japan Marine United Corporation
Operator:	Japanese Maritime Self Defence Force (JMSDF)
Displacement:	19,500t
Length:	248m
Beam:	38m
Draught:	7.5m

Izumo-class, the largest surface combatant in Japan, was put into service with the Japanese Maritime Self Defence Force (JMSDF) in March 2015. The Izumo Class destroyer ships replace the [Hyuga-class](#) destroyers, which were commissioned in March 2008. The vessels can be used for multiple purposes, including anti-submarine warfare, command-and-control operations, humanitarian aid and disaster relief operations, as well as to protect Japanese territories in the East China Sea. Japan Marine United Corporation, which was created by the integration of two companies, Universal Shipbuilding and IHI Marine United, custom-built the two Izumo-class ships at the Yokohama shipyard. The construction of Izumo-class destroyer was conceptualised by the Japanese Ministry of Defense (MOD) in November 2009. JMOD received a budget of 118.1 billion yen for the fiscal 2010 for the construction of a helicopter destroyer. Construction of the first ship in the class, JS Izumo (DDH-183), began in 2011 at Yokohama shipyard. Its keel was laid down in January 2012 and the vessel was

launched in August 2013. It was commissioned at Yokosuka port in Japan in March 2015. Investment on the vessel amounted to approximately ¥120bn (\$1.01bn). Keel for the second ship in the class was laid down in October 2013, and its launch will take place in August 2015. Commissioning will take place by March 2017.



From <http://worldwideaircraftcarriers.com/>



Design features of Izumo-class destroyer

The Izumo-class destroyer has a length of 248m, beam of 38m, draught of 7.5m and depth of 33.5m. Its displacement is 19,500t when empty and 27,000t when fully loaded. It can complement 970 crew and troops, and as many as nine helicopters including seven anti-submarine warfare (ASW) helicopters and two search and rescue (SAR) helicopters. The destroyer features a spacious flight deck that can accommodate five helicopters to take off and land simultaneously. It also includes roll-on and roll-off ramp, and interior space for up to 50 vehicles. Sensors and processing systems fitted to the vessel include OYQ-12 combat direction system, FCS-3 fire control system, OPS-50 AESA radar, OPS-28 surface-search radar, and OQQ-23 bow [sonar](#).

Weapon systems fitted on Izumo-class destroyer

The Izumo-class destroyer is fitted with two Phalanx close-in weapon system (CIWS) guns, and two SeaRAM CIWS launchers. It is also equipped with electronic warfare and decoy systems, including NOLQ-3D-1 EW suite, Mark 36 SRBOC, anti-torpedo mobile decoy (MOD), and floating acoustic jammer (FAJ).

Izumo-class destroyer propulsion and performance

The Izumo-class destroyers are propelled by four GE/IHI LM2500IEC gas turbine engines, which generate a power of 112,000hp (84,000kW). They can sail at a top speed of more than 30kn (56km/h).

Source: <http://www.naval-technology.com>

Forces need at least 400 drones

Sunday, 25 February 2018

With stress on aerial surveillance and reconnaissance to get real time picture of the battlefield, the Indian armed forces want at least 400 drones besides submarine launched remotely piloted aircraft. Directed Energy Weapons (DEWs), including high energy lasers and high-powered microwaves with the ability to destroy enemy target and satellites, are also projected needs to boost offensive and defensive military capabilities. These capability enhancement requirements are part of the modernisation plan up to the late 2020s and figured prominently in the recently released Defence Ministry's document "**Technology Perspective and Capability-Roadmap.**" These future projects enable the Indian industry both private and public to improve their design and manufacturing capacities to cater to the needs of the armed forces. "This roadmap may guide the industry in planning or initiating technology development, partnerships and production arrangements. While pursuing any development or collaboration, the Indian industry should accord due importance to the Government's thrust towards 'Make in India'," the 82-page document said. It also mentioned the Navy's requirement for another aircraft carrier to boost maritime prowess. At present, the Navy has only one aircraft carrier **INS Vikramaditya**. Another ship **INS Vikrant** is in the last stages of manufacturing at Cochin Shipyard and will soon embark on sea trials. The proposed aircraft carrier mentioned in the roadmap document says the ship will serve the Navy for at least 40 years. Highlighting the urgency to equip the armed forces with next generation unmanned aerial vehicles (UAV) or drones both for surveillance and hitting enemy targets, the document said the new drones will have longer period of staying in air, fly greater distance and take out targets. The armed forces, at present, have about 200 drones which act as major force-multipliers in modern-day warfare. As regards remotely piloted aircraft (RPA) launched from submarines, the document noted the Army and Navy need at least 30 such platforms and said "the medium-altitude, long-endurance (MALE) combat RPA should have the capability to fly up to 30,000-feet altitude, with extended satellite communication ranges and endurance of more than 24 hours." The drones should be capable of firing missiles at land and maritime targets from over 20-km away, it added. Besides this requirement, the two Services also require 100-150 spy drones, with the Army also needing 55-70 stealth, 50 short-range and 30 hybrid RPAs. The Navy also wants 50 high-altitude, long endurance(HALE) drones that can be launched vertically from warships as well as 10 submarine-launched RPAs. About Directed Energy Weapons (DEWS), the paper said the Army and IAF need at least 20 "tactical high-energy laser systems" with the capability to destroy small aerial targets, electronic warfare and radars systems at a range of six -eight km in Phase-I. The next phase will see the laser systems should have a range of over 20-km to take on "soft-skinned" vehicles and troops, satellites from ground and aerial platforms.

Source: <http://www.dailypioneer.com>

US and French Fighters Contend for a Place Aboard India's New Aircraft Carrier

Would the Boeing F-18E or Dassault Rafale M be better suited to operating from India's new aircraft carrier?

By Abraham Ait

February 24, 2018



An F/A-18E Super Hornet of Strike Fighter Squadron (VFA) 27 launches from the flight deck of the Navy's forward-deployed aircraft carrier, **USS Ronald Reagan (CVN 76)**.

Image Credit: [U.S. Navy photo by Mass Communication Specialist 2nd Class Janweb B. Lagazo](#)

With the Indian Navy's first two carriers **INS Vikramaditya** and **INS Vikrant** deploying Russian built MiG-29K multirole fighters from their decks India has sought a new source of fighters for its third and largest carrier – **INS Vishal**. While the **Vikramaditya**, a heavily modified former Soviet *Kiev* class carrier, is currently in service and the **Vikrant**, the country's first domestically built carrier, is in its late development stages, the **INS Vishal** remains in the mid-design stage and has yet to see its keel laid. At 65,000 tons the **Vishal** will be by far the heaviest carrier commissioned into the Indian Navy, and is set to integrate several cutting edge technologies largely absent on previous Indian platforms. One prominent example are the navy's plans to [acquire](#) U.S. electromagnetic launch systems (EMALS) [developed](#) for the U.S. Navy's *Gerald Ford* class supercarriers to enhance the capabilities of the **Vishal**, which the United States military has agreed to provide in light of growing military cooperation between the two powers. While the **Vishal** is hardly a supercarrier, its capabilities will make it one of the leading carrier platforms in the world very likely eclipsing the capabilities of the Chinese **Liaoning**, Russian **Admiral Kusnetsov** and French **Charles De Gaulle**. India's new carrier will be the country's first to deploy fighters using a

Catapult Assisted Takeoff But Arrested Recovery (CATOBAR) system, the most efficient system for launching carrier-based aircraft which allows for the deployment of far heavier and better armed fighters than alternative systems. India's previous two carriers by contrast relied Short Takeoff But Arrested Recovery (STOBAR), limiting the weight of aircraft which could be launched and thus the types of aircraft which could operate from their decks. The Indian Navy has requested a carrier based multirole fighter for the *Vishal*, and is set to acquire 57 platforms for its deck. While previous carriers relied heavily on the Russian MiG-29K for combat roles, a platform designed for the Soviet Union's own STOBAR dependant carriers, India's induction of its first CATOBAR-capable carrier has allowed the navy to choose from a far wider range of fighter platforms. Bidding for India's contract represents a unique [opportunity](#) for manufacturers of CATOBAR-capable fixed wing fighters, as India is currently the only operator of carriers employing conventional takeoff aircraft which is [unable](#) to produce its own fighters (since Brazil and Thailand demobilized their own carrier and carrier-based fighters respectively.) The United States, Russia, China and France by contrast all produce their own carrier-based fighters, while carriers such as the British *Queen Elizabeth* class and Japanese *Izumo* class are incapable of operating such fighters and rely solely on short takeoff vertical landing (STOVL) capable platforms. Russian and Swedish bids have already been eliminated from the competition to provide fighters for the *Vishal*, the former due to its lack of experience with CATOBAR systems and the latter due to its lack of any experience whatsoever in operating modern aircraft carriers. According to Gene Cunningham, vice president of Boeing Defense, the company has selected the Boeing F-18E Block III Super Hornet as the most suitable export for India's tender. This is the United States' most advanced carrier-based platform, set to serve in large numbers onboard its *Gerald Ford* class supercarriers alongside the F-35C and in many ways superior to its lighter fifth generation counterpart. The fighter features limited stealth capabilities, a next generation cockpit, conformal fuel tanks for an extended range, and can carry up to fourteen air to air missiles – making it perhaps the most sophisticated and heavily armed carrier based fighter to date. France's Dassault remains the only other contender. By contrast to the U.S. Navy's diverse and gargantuan fleet of fighter aircraft, the French Navy fields only a single carrier based fighter class, the Rafale M, and has only around 30 of them deployed on its sole aircraft carrier *Charles De Gaulle*. When comparing what acquisitions of the French Rafale and U.S. F-18E can offer the Indian Navy, accepting the U.S. offer remains far more likely for both practical and political reasons. Not only is the F-18E far more widely operated and more cost effective, largely a result of economies of scale and the United States' far larger acquisitions relative to those of France, but the U.S. can also afford to invest in research and development for modernization at a rate France, fielding a very small fleet, cannot. Examples include recent upgrades to equip the F-18E with advanced [anti stealth capabilities](#), invaluable in Indian hands considering China's induction of large numbers of [highly capable](#) stealth platforms. The Rafale M has not been upgraded with any such capabilities, and considering the [current general state](#) of French military aviation it is unlikely to modernize the fighter in any way comparable to the Super Hornet. The F-18E boasts several other assets the French platform lacks entirely, perhaps most prominent of which are its ability to deploy more advanced long range air to air missiles. The [AIM-120D](#) currently under development for example is set to have a range of 180 km, giving Indian fighters an advantage at extreme ranges over fighters deployed from any non U.S. carrier (assuming India can acquire the AIM-120D before China inducts its own [PL-15](#) ramjet powered air to air missiles). The advantages of the Rafale M over the F-18E are somewhat negligible by comparison. The fighter retains a higher speed, superior maneuverability and a greater climb rate, none of which are likely to prove decisive in beyond visual range engagements. Visual range combat, in which the Rafale excels, is meanwhile particularly unlikely for carrier based fighters given both the vast distances separating naval fleets and the relative scarcity of aerial targets at sea. While land-based variants of the Rafale are renowned for their formidable range and payload, these are limited on the naval variant to reduce takeoff weight. With France using less sophisticated steam-based launch systems for CATOBAR launches its fighters' payload is reduced relative to those of F-18E fighters deployed from the United States' *Gerald Ford* next generation carriers, the latter which can make full use of an EMALS launch system to deploy with more weapons and carry more fuel for a longer range. France would need to extensively modify the Rafale M to take full advantage of the EMALS system, one which the French Navy has no experience operating with, whereas the F-18E Block III has already been tailor made for the role. This makes U.S. platform far more suitable for deployment from the *INS Vishal* considering that it will itself use the very same EMALS system as U.S. carriers. Arms acquisitions often take a country's geopolitical alignments strongly into consideration, and provide an excellent means for nations to strengthen their defense ties. With India's Navy in particular seeking closer ties to the U.S. military, and with the United States having far more to offer India in its military modernization efforts than France, acquiring the F-18E could well be a politically superior choice as well as a practical one. Deploying the F-18E could also better facilitate Indian acquisitions of specialized derivatives of the Super Hornet used by the U.S. Navy such as the EA-18G Growler electronic warfare platform and the stealthy Advanced Super Hornet, should the latter eventually enter service. Ultimately the F-18E, a platform combat tested on numerous occasions and heavily relied on by the U.S. Navy to engage near peer threats, is set to be an excellent choice for the Indian Navy, while the Rafale's capabilities and prospects for future modernization to match rival platforms remain relatively limited by comparison. The *INS Vishal* remains far more likely to deploy the U.S. made F-18E upon being commissioned, which will be the United States' first ever export of a fourth generation carrier based fighter. The acquisition will make the *INS Vishal*'s fighter contingent among the most capable in the world, and will go a long way towards cementing defense ties between the navies of the United States and India.

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Source: <https://thediplomat.com>

Indian Navy successfully test fires nuclear-capable ballistic missile 'Dhanush' from sea

By [Hemant Kumar Rout](#) | Express News Service | Published: 23rd February 2018 04:29 PM |



Dhanush missile being fired from a naval ship
(Express Photo)

BHUBANESWAR: Continuing its user training exercise, the Indian armed forces on Friday successfully test fired nuclear-capable surface-to-surface ballistic missile Dhanush in full operational configuration from a naval warship positioned in the Bay of

Bengal. The trial was conducted at about 10.52 am by the Strategic Forces Command (SFC) of the Navy from an undisclosed location nearly 45 km from the Paradip coast. This was the third test of a Prithvi variant of missile this month and second in the last three days. On Wednesday, the SFC of Indian Army had successfully conducted first night trial of Prithvi-II ballistic missile from the Integrated Test Range (ITR) off Odisha coast. The test was aimed at checking the performance of manoeuvring stealth warheads besides gauging the efficiency and killing probability of the missile in a real-time situation. The missile achieved close to zero circular error probability (CEP) accuracy. A defence official said the mission Dhanush was excellent as it met all the parameters as expected. *"The missile was test fired from a naval warship while another warship provided all logistic supports for the test. It was a textbook launch and fantastic mission accomplished,"* he said. Dhanush, the indigenously developed naval version of the 'Prithvi' short-range ballistic missile (SRBM) has a striking range up to 350 km and can neutralise both land-based and sea-based targets. It can carry a single warhead, conventional or nuclear up to 500 kg. The entire flight path of the missile was smooth in accordance with pre-decided coordinates. The mission parameters like elevation, trajectory, azimuth, flight path and stage separation were rightly validated. Developed by the DRDO under its ambitious Integrated Guided Missile Development Programme (IGMDP), the missile is about 8.53 metres in length and 0.9 metre in diameter besides its launch weight about 4.4 tonnes. This single stage missile uses liquid propellant and can be used as an anti-ship weapon as well as for destroying land targets depending on the range. The missile maintained its intended trajectory before plunging down the sea. The test launch was tracked from its take-off to impact point through an integrated network of sophisticated radars and electro-optic instruments for data analysis. The entire mission sequencing events occurred as expected. Dhanush is under production after it successfully completed several developmental and user trials. It has already been inducted into the Armed Forces. Prior to the test, a Notam was issued to aviators and mariners to keep away from the area of splashdown.

Source: <http://www.newindianexpress.com>

East Africa: Crisis On Horn As State Nabs Africa's Most Strategic Port

analysis By *Hassan Aoubaker*

Djibouti — NATIONALISATION of Africa's most strategic harbour plans for China to run the facility could put Beijing in charge of the only waterway linking the Indian Ocean to Europe. For those who know Djibouti and the unpredictable president Ismaïl Guelleh, it should have come as no surprise, but the ousting long-time operator DP World from the tiny country's harbour at Doralah near the capital has seen crisis talks in Dubai, Paris, Nairobi and Washington. An edict seizing the container terminal was issued on 22 February by the government of President Ismaïl Guelleh at the same time as Djibouti was carrying out elections largely viewed as a farce. Mr Guelleh (71) along with his ruling party control more than 80 per cent of the national assembly in a country listed by every human rights index as among the most oppressive in Africa. But it was the container docks at Doralah five kilometres west of the capital Djibouti city, and plans to hand its operation to a Chinese conglomerate that led to urgent meetings this weekend in Washington and Paris. Both the United States and France have military bases in Djibouti from where they monitor terror groups in Somalia, Yemen and Kenya. China has its own base, with more troops than the US, but control of the port by Beijing could be a problem for French and American warships in the area. One of the berths is already reserved for exclusive use of the Chinese navy. The terminal was under lease to Dubai company DP world, which runs more than 70 ports across the globe including Maputo and with new facilities underway at several harbours in South Africa. The government of Dubai was quick to issue a statement condemning the takeover by Djibouti. *"The illegal seizure of the terminal is the culmination the government's campaign to force the DP World*

to renegotiate the terms of the concession," the statement said. "Those terms were found to be fair and reasonable by a London Court of International Arbitration tribunal." The statement said DP World would contest the move in "the London Court of International Arbitration to protect their rights, or to secure damages and compensation for their breach or expropriation." Nearly all of East Africa's exports to Europe - along with those sent from Zimbabwe via Beira in Mozambique -- are shipped through the narrow waterway past Djibouti, the only route from the Indian Ocean to Suez and on to the Mediterranean. Before independence in 1977, this was French Somaliland, and since then Djibouti's only two presidents have been Mr Guelleh and his uncle who died in 1999. Human rights groups including Amnesty International and Human Rights Watch have long condemned the Guelleh regime, citing torture, killings, control of the press and elections where opposition candidates have been detained or forced into exile. On index lists for human rights issued by various NGOs, Djibouti has fared worse than Zimbabwe even during the most oppressive years under Robert Mugabe. But it is from here that the United States - with its base of almost 4000 personnel at Fort Lemonier near the capital, Djibouti City -- is able to launch attacks on terror group al-Shabaab who were responsible for the 2013 attack on Westgate Mall in Nairobi and the slaughter of 148 students and teachers at Garissa University two years later. In the past decade, al-Shabaab has carried out more than 200 attacks in Kenya though most were small-scale ambushes on military convoys, the most recent in January this year. The strategic importance of Djibouti has left both Nairobi and Washington with little room to move, though in recent years the US Congress has been critical of Mr Guelleh's support for China along with plans for a new Russian army base in the territory. A letter from senior congressmen to the US State Department during the Obama presidency described Guelleh as "erratic and unreliable", and called for a wider spread of American forces across Africa rather than being concentrated at Fort Lemonier. However, seizure of the port and plans for China to operate the harbour are the first test in the region since President Donald Trump took office in January last year. Mr Trump has been more aggressive than President Obama in dealing with countries like Iran and North Korea, and in his what he perceives as a threat to US interests, though by time of going to press neither the White House nor the Pentagon had issued a statement.

Source: <http://allafrica.com>

Navy agrees to buy four Russian frigates for \$3 bn

The navy's medium term plans envisage increasing warship strength from the current 140-odd, to 198 warships by 2027

[Ajai Shukla](#) | New Delhi Last Updated at February 26, 2018 01:30 IST



INS Teg, one of the Indian Navy's Krivak III frigates, sails into the South African Navy base at Simon's Town.

New Delhi and [Moscow](#) have finalised contractual terms for four new stealth frigates that [Russia](#) will supply the Indian Navy for slightly over Rs 200 billion (\$3 billion), or about Rs 50 billion (\$775 million) per vessel.

Designated the "Upgraded Krivak III class", the first two frigates will be built in Yantar Shipyard, in Kaliningrad, [Russia](#). The following two will be built in Goa Shipyard Ltd (GSL) with technology and designs transferred by Yantar. Delivery will begin within four years of signing the contract. With a defence ministry "cost negotiation committee" having hammered out terms, it remains for the finance ministry and the Cabinet to clear what will be the first capital [warship](#) contract signed since Project 17A was contracted in early-2015. The navy already operates six Krivak III frigates. The first three joined the fleet between June 2003 and April 2004, followed by another three between April 2012 and June 2013. With the current contract, the navy will operate 10 Krivak III frigates — the fleet's largest single type. The Krivak III costs marginally less than the Rs 57.50 billion (\$888 million) that the navy will pay for each of seven indigenous frigates that Mazagon Dock Ltd, Mumbai (MDL) and Garden Reach Shipbuilders and Engineers, Kolkata (GRSE) have been contracted to build under Project 17A. However, tonne-for-tonne, the indigenous frigates are cheaper. Each displaces about 5,600 tonnes fully loaded, significantly more muscular than the 4,000-tonne Krivak III. Further, each Project 17A frigate has space for two multi-role helicopters, while the smaller Krivak III embarks just a single Kamov-31 chopper. An extra helicopter provides major advantages in anti-submarine operations and airborne early warning. Even so, with MDL, GRSE and GSL already stretched to capacity, navy planners are

satisfied that Yantar is meeting India's urgent need for more capital warships. The navy is also pleased with how the Krivak III fleet has performed over time. New Delhi wanted to build all four Krivak III frigates in GSL under 'Make in India'. However, Yantar had already part-built two frigates for the Russian Navy, which then backed away for lack of funds. New Delhi has obliged [Moscow](#) by buying them. The part-built frigates at Yantar are also stalled by a defence embargo that [Ukraine](#) imposed on [Russia](#) after the latter annexed the Crimea. New Delhi, which has close defence relations with Ukraine, has undertaken to procure and provide Yantar the Zorya turbines that will power these. The agreed terms stipulate a certain level of Indian-isation for the first two vessels that Yantar will deliver, and a significantly higher level for the next two vessels that are to be built in Goa. For GSL, building a vessel as complex as a frigate will require upgrading its facilities and skills. However, naval planners say GSL should not take long to learn, having recently undergone the experience of building missile corvettes that are similarly dense in weapons and sensors. These new Krivak III frigates will have the same engines and armament configuration as Yantar's last three frigates — **INS Teg, Tarkash** and **Trikand**. These include the vaunted BrahMos anti-ship and land attack missile. Senior naval planners underline the advantages of negotiating a "follow-on" contract, i.e. for vessels similar to those procured earlier. While it took six months to negotiate the contract for the **Teg, Tarkash** and **Trikand**, negotiations for the current contract took only 45 days to negotiate and finalise. The navy's medium term plans envisage increasing [warship](#) strength from the current 140-odd, to 198 warships by 2027. This will require adding 5-6 warships annually. While some 75 vessels of various types are in the navy's procurement pipeline, there remains a worrying shortfall of frigates, which are the navy's workhorses. "We need to have at least 24 frigates. Currently we are 10 short," says a senior admiral.

Source: <http://www.business-standard.com>

4 more frigates needed to secure PH seas: Navy chief

By [Philippine News Agency](#) on February 25, 2018

MANILA — To fully protect the country's vast maritime domains and resources, the Philippines needs four more modern frigates aside from the two contracted with South Korean shipbuilder, Hyundai Heavy Industries (HHI). This was the remark of Philippine Navy (PN) flag-officer-in-command Rear Admiral Robert Empedrad when asked how many more modern warships the Navy needs to fully secure the country's maritime domains. Empedrad issued this statement during the Frigate Acquisition Project hearing at the Senate last Feb. 19 where issues concerning the brand of combat management system (CMS) to be installed were discussed. "Based on our Modernization Program, we will require six of the frigates until 2028 — that is our Third Horizon. Apat pa after we get these two ships," he said. The frigates, presently being built by HHI, will be armed with weapons capable of neutralizing surface, sub-surface and air threats aside from its electronic warfare ability. These ships have a contract of PHP18 billion, including their weapons systems and munitions. In the same hearing, the Navy chief said there are also plans to install a CMS and upgrade the weapon systems of the three Hamilton-class cutters acquired from the US Coast Guard.

Source: <http://www.canadianinquirer.net>

USS Carl Vinson aircraft carrier sails through South China Sea in defiance of China

By South-East Asia correspondent [Adam Harvey](#)

Updated 26 Feb 2018, 3:29am

Deep in the South China Sea the nuclear-powered aircraft carrier, **USS Carl Vinson**, has a point to make. "It shows resolve, and gives decision space to our leaders," the ship's commanding officer, Captain Doug Verissimo, said. "When they put a carrier strike group somewhere it helps to show that the United States is interested. We don't have a lot of these, so when you put one in a certain area it has some influence. Of course it also gives our diplomats time and space to negotiate and make decisions, ultimately to try and prevent any type of armed conflict." The **Carl Vinson** is the flagship of a

strike group from the US Third Fleet. The other vessels are here — but you can't see them.



The **Carl Vinson** is the flagship of a strike group from the US Third Fleet. (ABC News: Adam Harvey)

Somewhere over the horizon, guided missile cruisers and destroyers form a protective shield around the aircraft carrier. No-one on board will say it so bluntly, but the ship is sailing through the South China Sea to send a deliberate message: these waters aren't China's alone. China has built airstrips and

ports on reefs and shoals throughout the sea in defiance of a [ruling from an international tribunal](#) in the Hague. "We want to keep laws and norms in place that we don't change the map along the way, to avoid frictions," Captain Verissimo said. "As

you change maps it creates new frictions and new issues." He doesn't mention it by name, but the only nation trying to change the map out here is China, which has drawn a so-called "Nine Dash Line" around waters it claims as its own. It doesn't want anyone going near any of its artificial islands. The strike group's commander, Rear Admiral John Fuller, won't reveal where he's planning on sailing during this mission but it's clear he's not charting his course using China's map. *"I will say our navigation is very good and we know where international law says we can operate and I know where international law says we can't. And we're going to do what international law says we can do."* The ship's commanding officer describes the **Carl Vinson** as a floating city — it has a dental surgery, gyms, a Starbucks cafe, armed guards, Friday night karaoke and even a chapel that holds services for Catholics, Protestants, Buddhists ... and Wiccans. There's a permanent crew of 3,000 — and another 2,000 people on board associated with the ship's aircraft: about 70 planes, including FA18 Super Hornets and Hornets, EA 18G Growlers, Nighthawk helicopters and surveillance aircraft. I'm on board of the Vinson along with media from the Philippines — the nation with perhaps the most to lose from Chinese expansion in the South China Sea. China's already [blocked Filipino fishermen from the lucrative fishing ground](#) around Scarborough Shoal. The US is making a big deal of this trip because it wants to show Filipinos that it stands with them in keeping the South China Sea open. The ship is moving between an old ally and a new one ... and another nation concerned about China's island-building in these waters. The **Carl Vinson** began this leg of its journey in Manila and it'll drop anchor next off Danang, Vietnam. It'll be the first visit from a US aircraft carrier since the end of the Vietnam War. This time the fighter jets will be stowed away. **Source:** <http://www.abc.net.au>

Breaking the Anti-Ship Missile Kill Chain

[February 26, 2018](#) [Richard Mosier](#)

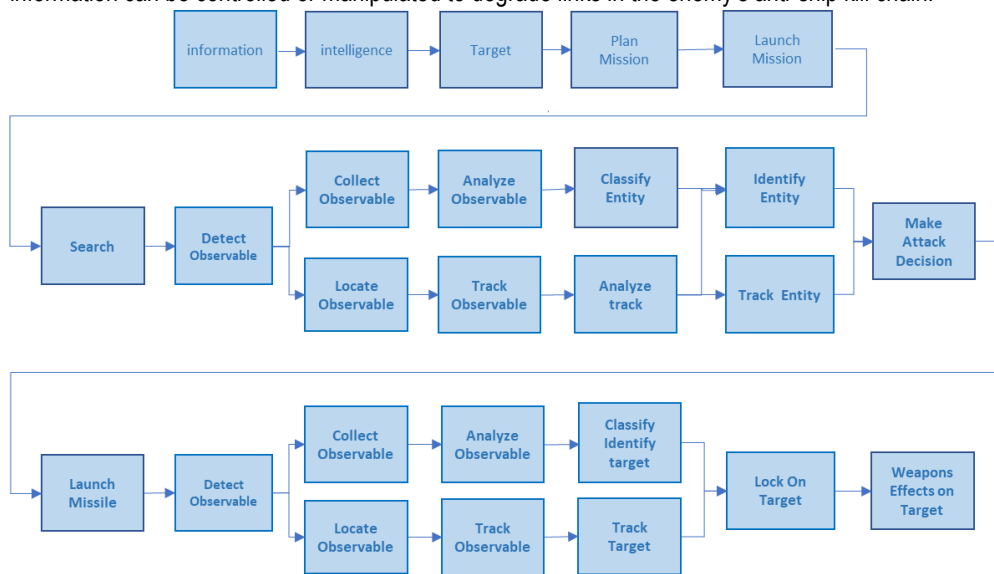


Sputnik/ Ildus Gilyazutdinov

By Dick Mosier

With the fielding of increasingly capable anti-ship missiles, the centerpiece of the next conflict with a near-peer maritime power will be warfare to deny the adversary the intelligence, surveillance, reconnaissance and target acquisition information required for successful anti-ship missile attack on surface combatants and capital ships. Land, air, surface ship, and submarine launched anti-ship missiles are and will increasingly be the dominant threat to surface navy operations. Ballistic anti-ship missile systems such as the Chinese Dong Feng 21 (DF21D) and Dong Feng 26 (DF26); hypersonic anti-ship missiles such as the Russian 3M22 Zircon (NATO SS-N-33); and, anti-ship cruise missiles leveraging artificial intelligence for threat avoidance and target acquisition dramatically increase the threat and severely challenge the anti-ship missile defense capabilities of the surface navy. The trend favors the offense. The longstanding and current investments in fleet kinetic and electronic defense against incoming launch platform or inbound anti-ship missiles will remain necessary but increasingly insufficient. A sea-skimming, Mach 6, ZIRCON anti-ship missile, breaking the radar horizon at 15nm from a surface target, would impact the ship in approximately 15 seconds. With these short reaction times the likelihood of a navy surface ship detecting and destroying the incoming missile is low. One way to offset this dramatically increased threat is to counter the adversary's intelligence, surveillance, reconnaissance (ISR) and target acquisition (TA) capabilities. Even the most sophisticated anti-ship missile systems are dependent on a chain of events starting with intelligence to support the targeting decision process, followed by reconnaissance and surveillance to find the target, and ending with weapons effects on the target. It includes the communications and data links for the transfer of information along the kill chain and the command and control decisionmakers. The attack will be unsuccessful if any of the links in this anti-ship missile kill chain are broken. The concept of a kill chain is well established in the U.S. military as evident in terms such as Sensor-to-Shooter; Observe, Orient, Decide, Act (OODA); and Find, Fix, Track, Target, Engage, and Assess (F2T2EA). Though similar in concept, the kill chain for anti-ship missile attack against moving maritime targets requires a detailed decomposition to identify the links in the chain of events that must be completed for attack success. The following is a representation of a notional anti-ship missile kill chain. The links in the kill chain that reference "observables" all depend on own force/own ship offering visual, infrared, acoustic, RF (radar, communications, data links) observables that can be exploited by the adversary to complete the kill chain. In addition to technical observables, the operations of the force/own ship offer observables such as course, speed, and formation from which to deduce that the entities are military and that entities being screened by a

formation might be the highest value. Many of the observables that can be exploited by the enemy to acquire this information can be controlled or manipulated to degrade links in the enemy's anti-ship kill chain.



In response to the rapidly evolving threat, the Navy needs a strategy that officially recognizes the requirement and places high priority on breaking the anti-ship missile kill chain. There are several elements to the execution of this strategy. First, it requires very detailed intelligence on the end-to-end kill chain for each type of anti-ship missile, identifying, locating, and assessing the technical characteristics and performance of each link in the chain. Second, it requires operational intelligence on how a potential adversary actually uses or trains to operate the kill chain for each type of missile. Third, it requires analysis of the observables offered by U.S. Navy combatants that could inform an adversary's kill chain. Having knowledge of all three elements, the analysis can be performed to identify both material and non-material alternatives; and assess their effectiveness, technical and operational feasibility, probability of success, and costs. Breaking the anti-ship missile kill chain requires a response that integrates a variety of national, theater, and Navy information-related activities executed ashore and afloat. Composite Warfare Commanders and their supporting Information Operations Warfare Commanders will be required to have detailed knowledge of adversary ISR and TA systems and their capabilities. They will require situational awareness sufficient to determine whether the force is within enemy detection range, and assess whether the adversary has located and identified the force. This assessment drives the decision of if and when to transition from denying observables to active electronic and kinetic defense when it is tactically advantageous. It will also require creation of a new warfighter career path focused on countering enemy ISR and TA and breaking the anti-ship missile kill chain. This career path would be technically challenging, requiring personnel educated in the physics of the various types of sensing, such as satellite reconnaissance, Over-The-Horizon Radar (OTH-R), Inverse Synthetic Aperture Radar (ISAR), time difference of arrival (TDOA), frequency difference of arrival (FDOA), imaging and non-imaging IR, and acoustic systems. The knowledge of physics at work in the acoustic, atmospheric, and ionospheric environments and in the various types of sensing systems has to be followed by knowledge of how various techniques are employed by adversaries along individual steps of the kill chain when hunting surface ships and aircraft. This foundation of knowledge forms the basis for the conceptualization and testing of new concepts, formulation of new requirements, the fielding of new systems, the development of doctrine and tactics, and manning of the fleet with ready warfighters. In summary, the fielding of ballistic and hypersonic anti-ship missiles by Russia and the China constitutes an alarming increase in the threat to U.S. Navy surface ships. It demands a strong, focused, offsetting response aimed at defeating these new weapons by breaking their respective anti-ship missile kill chains. This strategy will be successful only if it is treated as a major new direction for the U.S. Navy, with sustained high-level support, strong organization, and innovative leadership.

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Source: <http://cimsec.org>

Two workhorses of the sea



Boskalis Offshore's *Bokalift 1* moored at the Wilhelmina kade in Rotterdam Photo : Hans Hoffmann (c)



The *Seven Phoenix* operating in the Campos Basin offshore Brazil Photo : Capt Jan Plug Master Seven Rio (c)