

NAVY NEWS WEEK 21-3

22 May 2018

Russian Navy to Split the Far East Order for Karakurt-Class Corvettes

Since 2019, Russian Navy will place the shipbuilding order for Project 22800 Karakurt-class corvettes at the Far Eastern shipyards. Four ships will be assigned for the Amursky Shipyard, other two – for the Vostochnaya Verf, announced deputy defense minister Yury Borisov visiting the Pella Shipyard in the Leningrad Region. He assessed current construction rate of Karakurt corvettes as 30 months per ship. *"Indeed, there were some problems with cooperation"*, added the officer. Beginning from the Shkval corvette, all subsequent Karakurt-class ships will be equipped with Pantsir-M missile/artillery air defense systems instead of AK-630M gun mounts. According to Dmitry Tsymlyakov, head designer at the Almaz Central Marine Design Bureau, works on the new system needed much effort. *"Were it not for Viktor Chirkov [ex-Russian Navy Commander, currently chief advisor to the United Shipbuilding Corporation's president for military shipbuilding – editor's remark] and Dmitry Konoplev [managing director at the KBP named after Academician A. Shipunov – editor's remark], Pantsir would never exist. We used to work 12-14 hours a day on this project"*, shared Dmitry Tsymlyakov. As was reported earlier, the defense order for the Project 20380 corvettes was scaled down for the Amursky Shipyard. The company will build only four out of six ships originally planned. Initially, the yard was expected to win the order for all six Karakurt-class corvettes of the Far Eastern series. The Karakurt-class corvette project was developed by the Almaz Central Marine Design Bureau. The ship's length is 60 meters, beam is 10 meters, draft is 4 meters, diesel electric Russian-made main propulsion plant, max speed is 30 knots, operational range is 2,500 nautical miles, endurance is 15 days. **Source: mil.com**

HMS Protector arrives in South Africa following busy summer season in the Antarctic

The Royal Navy's ice patrol vessel HMS *Protector* has arrived in Cape Town for maintenance following a busy summer season that has seen it mix scientific research and hydrographic surveying with searching for a missing Argentine submarine and diplomatic visits to several regional allies.



Africa will be the third continent in a month for HMS *Protector* which has sailed from Antarctica via South America where she made a port call to Buenos Aires. The rare visit, the Royal Navy's first to Argentina since 2004, saw the vessel thanked for its involvement in the search for **ARA San Juan** last year and build up its relationship with fellow military icebreaker the **ARA Almirante Irizar**. Her welcome in Cape Town was equally as warm with British Consul-General Ed Roman greeting them at the harbour along with a contingent from the South African National Defence Forces. The

crew spent most of Sunday clearing the decks ahead of maintenance work to keep her ship shape for the months ahead. Her next season is already looking to be another busy one with a joint UK-US scientific initiative studying the mighty Thwaites Glacier likely to require significant logistics support from the vessel with aviation fuel and supplies. As part of forward deployment plans HMS *Protector* last left the British Isles in 2015 and is expected to remain in the southern hemisphere until 2020. Like other ships on permanent station its crew operates on a rotation watch system with only a portion of the crew aboard at any one time and the remainder back in the UK for training or leave.

Source: UK Defence Journal

First Project 22800 Karakurt-class Corvette Uragan to Start Trials in mid-May



Russia's First Project 22800 corvette **Uragan** seen in March 2018

"The Project 22800 lead ship Uragan will start its shipbuilders trials in Lake Ladoga on May 15 or, maybe, even on May 14,"

Tryapichnikov said. According to him, the ship will go to Baltiysk in west Russia in future and continue its trials there. The Project 22800 corvette was designed by Russia's Almaz Central Marine Design Bureau. The ship has a displacement of about 800 tons and a speed of 30 knots. It is armed with Kalibr (SS-N-27 Sizzler) missiles and advanced artillery systems. It also has Russian-made propulsion units. The seaworthiness of the ship has been improved due to the hull design, which allows it to operate on the high seas.

Source: Navy Recognition

Navy commanders meet to discuss India's maritime security, China

The four-day conference will culminate on May 11.

Updated: May 08, 2018 23:10 IST

Press Trust of India, New Delhi



Defence minister Nirmala Sitharaman in a group photograph with Navy officers at the Naval Commanders' conference in New Delhi on May 8. (PTI Photo)

Top naval commanders in a four-day conference that began on Tuesday will discuss aspects concerning the country's maritime security, analyse mission-based deployments and

larger issues of the geo-strategic Indian Ocean, a region witnessing increasing Chinese presence. Defence minister Nirmala Sitharaman, who inaugurated the conference, told reporters that there has been a very pointed discussion on issues raised by naval commanders and Navy chief Admiral Sunil Lanba. The defence secretary, the financial advisor in the defence ministry and the Navy have been having talks with an open mind and several issues of concern have seen a "meaningful discussion", she said. The conference will culminate on May 11. Admiral Lanba said during the conference, "We are going to analyse our mission-based deployments, maintenance to operational transitional cycle and larger issues of geo-strategic Indian Ocean." The Indian Ocean, considered the backyard of the Indian Navy, is critical to India's strategic interests. Over the years, the region has witnessed increasing Chinese presence. China increased its presence in the Indian Ocean Region by constructing the deep-sea Gwadar Port in southern Pakistan and a naval base in Djibouti in the Horn of Africa. The region also has Chinese ships deployed for anti-piracy operations. The commanders would also deliberate on improving the Teeth-to-Tail ratio and explore niche fields such as Artificial Intelligence and Big Data Analytics. Harnessing cutting-edge technologies, specifically those 'Made in India' would be a key focus during the conference. The Indian Navy's focus over the past year has been on combat efficiency and material readiness, and upkeep of its fleet of 131 ships and submarines. Measures to ensure safety, continued training, and checks and balances on crew proficiency aboard its front-line warships will also be reviewed. The commanders will also discuss the optimal utilisation of the Navy's share of the defence budget by prioritising capital acquisitions and modernisation plans to bridge critical capability gaps. Sitharaman said the Navy's requests for major acquisition projects for 2018-19 will go through smoothly and there is nothing to worry in that regard. She said a large part of the Navy's requests between 2017-18 has been taken to a logical conclusion and many of them are almost on the verge of getting tied up. "The CNC (Commercial Negotiation Committee) are over and so on well beyond over Rs 30,000 crore in 2017-18 with a fair deal of Navy's requests taken care of. "The requests are very well received and they will go through smoothly so there is nothing to worry," she said.

Source: <https://www.hindustantimes.com>

No tension between navies of India, China in Indian Ocean Region, says Sitharaman

By Agencies | May 09, 2018 12:01 am



New Delhi: Minister of Commerce & Industry, Nirmala Sitharaman addresses a media interaction regarding the First Meeting of Council for Trade Development and Promotion in New Delhi on Friday. PTI Photo by Kamal Singh (PTI1_8_2016_000090B)

New Delhi : Defence Minister Nirmala Sitharaman said on Tuesday that there is no tension between the navies of India and China in the strategic Indian Ocean, which has been witnessing increasing activities by the PLA Navy. Responding to a question on the "tussle" between China and India in the Indian Ocean Region, Sitharaman sought to downplay the issue and said, "There was no tension in the Indian Ocean, in the Navy against China." The Indian Ocean, considered the backyard of the Indian Navy, is critical to India's strategic interests.

Over the years, the region has witnessed increasing Chinese presence. China increased its presence in the Indian Ocean Region by constructing the deep-sea Gwadar Port in southern Pakistan and a naval base in Djibouti in the Horn of Africa. The region also has Chinese ships deployed for anti-piracy operations. On April 16, the Indian Navy on Twitter welcomed China's PLA Navy in the Indian Ocean Region. When asked about her visit to China, and that of Prime Minister Narendra Modi and External Affairs Minister Sushma Swaraj to that country last month and whether there has been any change in terms of strategy, Sitharaman said: *"We are talking, we are meeting each other – and that is a big change."* The defence personnel of the two countries were locked in a 73-day standoff in Doklam area near Sikkim last year and it had resulted in tension between the two Asian giants. Reacting to reports that there was a directive to the Army not to be aggressive on the borders, Sitharaman said she was not aware of it.

Source: <http://www.freepressjournal.in>

With China encircling India, top commanders assess Navy's combat efficiency

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May 08, 2018, 08.58 PM IST



Sitharaman also stressed on the need to *"develop our own weapons and sensors"* to make the nation *"truly self-reliant"*. At a conclave here on Tuesday to discuss naval efficiency and combat readiness amid worries over an assertive China encircling India, Defence Minister Nirmala Sitharaman said the Indian Navy has emerged as a *"dependable partner"* for Indian Ocean Region littoral navies. Sitharaman addressed senior commanders of the Indian Navy on the first day of the four-day conclave here that is being held to review the Navy's new *"mission-based deployments philosophy aimed at ensuring peace and stability in the region"*. *"India and the Indian Navy have emerged as the first port of call and a dependable partner for (Indian Ocean Region) IOR littoral navies to address their maritime security needs,"* the Defence Minister said opening the May 8-11 conference.

A navy spokesperson said the Navy's focus over the past year had been on *"combat efficiency and materiel readiness and upkeep of its large fleet of 131 ships and submarines"*. Neither the spokesperson and Sitharaman spoke about China creating military and strategic assets in India's close neighbourhood like in Bangladesh, Myanmar, the Maldives and Sri Lanka who have all signed up to Beijing's ambitious Belt and Road Initiative (BRI). But the looming presence of Chinese warships on the high seas in the Indian Ocean has left India a lot worried, scurrying for strategic bases overseas-like the one New Delhi is now set to establish in the archipelago of Seychelles with which it signed a pact to build naval infrastructure in February this year. The Defence Minister said *"the professionalism and dedication in performing the duties of safeguarding the maritime interest of the nation"* has made the Navy *"a force to reckon with in the Indo-Pacific"* region. At a brief news conference after the inauguration, Sitharaman parried a question from reporters on Chinese ubiquitous presence in the region including a deep-sea port at Gwadar in Pakistan and the establishment of a naval base in Djibouti in the Horn of Africa. Asked about India's border and maritime competitiveness with China, she said *"there is no tension between"* the two neighbours. Probed further and asked what had militarily changed between India and China following official visits to China by Prime Minister Narendra Modi, External Affairs Minister Sushma Swaraj and by herself, Sitharaman said: *"We are talking and meeting each other. That is a big change."* She said the Indian Navy, in addition to being the primary instrument and manifestation of the nation's maritime power, had also established itself as a potential tool for military diplomacy. *"The Navy has been playing an important role in furthering our national and foreign policy objectives through active cooperation and engagement with not just IOR littorals, but maritime nations across the globe,"* she said addressing the commanders. The minister also took a note of the critical capability shortfalls that the Navy was facing in ship-borne multi-role helicopters, reconnaissance aircraft, unmanned platforms, conventional submarines and surface ships. These issues, she said, *"need urgent redressal to maintain the combat edge of the Navy"*. She assured the commanders that these issues were being given due impetus and measures were being put in place to mitigate these shortcomings at the earliest. Sitharaman also stressed on the need to *"develop our own weapons and sensors"* to make the nation *"truly self-reliant"*. She praised the Indian Navy's active role in engaging with a wide range of research and development and production agencies which she said *"is indicative of its commitment"*. *"Towards this endeavour, the combat management system for the indigenous aircraft carrier Vikrant being developed with a private vendor (Tata PowerNSE) is a big step towards strategic partnership between the Defence Ministry and industry. "Programme 'samudrika', which will result in achieving 100 per cent indigenisation of the electronic warfare fit onboard Indian naval platforms, is also reflective of Indian Navy's continued efforts towards indigenisation."* She said shipbuilding projects worth over Rs 32,000 crore have been tendered and were progressing towards contract conclusion while as projects worth Rs 760 crore for construction of yard crafts were also being targeted for early conclusion through private and small shipyards. Read more at:

[//economictimes.indiatimes.com](http://economictimes.indiatimes.com)

China releases new badge, brassard for personnel serving on its Djibouti naval base

The new showpieces are to be worn by all Chinese personnel deployed to the Djibouti base.

[Zee Media Bureau](#)

Updated: May 08, 2018, 11:04 AM IST



A Chinese soldier displays the new Djibouti brassard on his arm.

China has been busy over the past couple of years setting up its first overseas military base in Djibouti. Now that it is up and running, Beijing has seen fit to indulge in some

ceremony. The People's Liberation Army (PLA) has released a special new insignia, badge and brassard for use by its personnel station at the new base in Djibouti. "Unlike other chest badges used by the PLA, the overseas troop badge has

no elements representing particular branches, such as the ground force or navy, but features a PLA emblem. The brassard for the Djibouti base highlights the Chinese national flag and olive branches, indicating the base will contribute to world peace and stability," Chinese military-owned PLA Daily said. The brassard also carries the words 'Djibouti Logistics Support Base' in both English and Mandarin. The pattern of the breast tag for troops stationed overseas is based on the Chinese military emblem - a five-



pointed star, shield, Great Wall crenel and olive branch. Chinese troops stationed at the base will start using the new badge and arm patch from June 1, the PLA Daily said. China ruffled a few feathers when it opened its first military base in August 2017, not too far from the locations of a US naval base and Japan's only overseas base. Beijing claims it is to make it easier for the Chinese Navy to conduct anti-piracy operations in the Indian Ocean, but this has been met with scepticism from military observers. They say the base is aimed at establishing a Chinese presence on the African mainland, where China is increasing its engagement in the quest for more natural resources. The PLA said the base will also help China to improve its capabilities in terms of international military cooperation, joint exercises, emergency evacuation and overseas rescue.

Source: <http://zeenews.india.com>

Adding Arleigh Burkes: H.I.I. Steps Forward for DDG-51 Restart

[May 10, 2018](#) 04:54 UTC by Defense Industry Daily staff

In April 2009 [Bath and Ingalls agreed to the Navy's surface combatant plans](#), thus heralding a significant restructuring within the American naval shipbuilding community. Under the agreements, the USA would end production at 3 Graf Spee sized DDG-1000 [Zumwalt Class "destroyers,"](#) but shift all production from the Congressionally-mandated joint arrangements to General Dynamics Bath Iron Works in Maine, which had already made program-related investments in advanced shipbuilding technologies. Northrop Grumman (now Huntington Ingalls Industries) would retain its DDG-1000 deckhouse work, but their main exchange was additional orders for DDG-51 Arleigh Burke Class destroyers. Their Ingalls yard in Pascagoula, Mississippi would continue building the DDG-51 destroyers, beginning with 2 ordered in FY 2010-2011.

May 10/18: More power for the Burke The Rotary and Mission Systems branch of Lockheed Martin is being [tapped](#) to provide services in support of the DDG-51 New Construction Ship program. The contract is valued at over \$11 million and sees for the production of common Machinery Control Systems (MCS). The MCS [provides](#) control and monitoring capability of the ship's auxiliary, damage control, electrical, and propulsion systems. As part of its electrical capability, MCS interfaces with the ship's power generation and electrical distribution system. The US Navy's [DDG-51 Arleigh Burke Class](#) destroyers are the backbone of America's present and future fleet. With the DDG-1000 Zumwalt Class order ended at 3 ships, the DDG-51 Arleigh Burke Class ships will become more important to the future Navy. The award brings the total cumulative face value to \$194.3 million. Work will be mainly performed in Baltimore, Maryland and expected to be completed by May 2019.



DDG-110 Construction

The US Navy's Revised DDG-51 Plan



DDG-1000

With the DDG-1000 Zumwalt Class ended at 3 ships, the DDG-51 Arleigh Burke Class ships will become more important to the future navy. The Navy's FY 2011 budget also terminated the planned CG (X) cruiser program as unaffordable. Instead, the US Navy would field an updated DDG-51 Flight III version, starting in FY 2016. That date has been pushed back, owing to technical issues with the Flight III ships. Under the current plan, the DDG-51 Flight IIA Restart version would remain in production from FY 2010-2017, buying 13 ships in total (DDG 113 – 125) under a multi-year buy program. Huntington Ingalls Industries ships ordered to date are both named after Congressional Medal of Honor recipients, and include:

- **DDG 113 John Finn**
- **DDG 114 Ralph Johnson**

Both Bath Iron Works and HII will continue to build ships of class, but lead yard status for the “*DDG-51 restart*” ships shifted to Northrop Grumman (now HII) during the restructuring. GD Bath Iron Works is currently contracted to build **DDG 115 Rafael Peralta** and **DDG 116 Thomas Hudner**, as the DDG-51 follow-yard. Beyond the Flight IIAs, US Navy plans once called for buying an undetermined number of DDG-51 Flight IIIs from FY 2016 through at least FY 2022, and perhaps until FY 2031. The follow-on DDG-51 Flight IIIs are expected to carry a smaller version of the new Air and Missile Defense Radar (AMDR-S) dual-band active array that was slated for the canceled CG (X), along with the upgraded power and cooling systems required to support it. Other enhancements will be fleshed out as detailed design work on the Flight III commences, reportedly in FY 2012-2013. Unfortunately, there have been early reports that integration of the AMDR radar could prove to be a problem. The new radar will need to have a power draw that the ship can handle, cooling needs that the ship's design can meet, and a size that can fit within the ship's available space, all without changing the destroyer's balance and stability. That is, to put it mildly, a challenge. So, too, are growing cost estimates that are edging the DDG-51 Flight III toward the price of larger and more advanced DDG-1000 Zumwalt Class ships. Flight III buys now appear set to start no earlier than FY 2018, if indeed they start at all. Current plans do call for an interim step, however, as part of the proposed 2012-2017 multi-year buy. Under the current multi-year proposal, 1 of 2 FY 2016 ships (DDG 123), and both FY 2017 ships (DDG 124-125), will “*incorporate Flight III capability*,” but not the new radars themselves. The addition of the AMDR-S radar and other associated systems would be funded as an engineering change proposal (ECP), so it doesn't look like it's affecting multi-year pricing. Otherwise, the Navy wouldn't be able to show enough savings [1] to justify a multi-year buy under US laws. The Flight III ECP won't be awarded until the Flight III Milestone Decision Authority approves the configuration, and the greatest risk would be changes that involve significant retrofits of DDG 123-125, beyond adding the AMDR radar. Those kinds of changes are always much more expensive than installing systems during ship construction.

Source: <https://www.defenseindustrydaily.com>

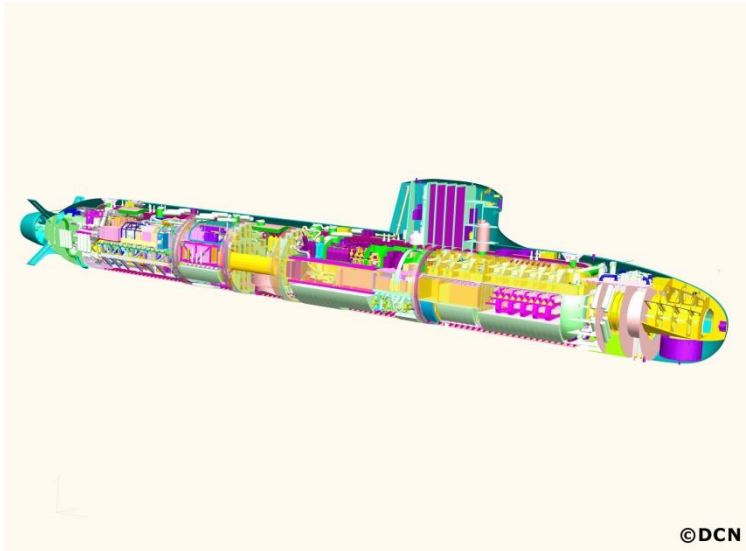
France's Future SSNs: The Barracuda Class

May 10, 2018 04:58 UTC by Defense Industry Daily staff

May 10/18: One more for Paris The French government will buy a fifth Barracuda class nuclear attack submarine. A spokesperson for the Armed Forces Ministry confirmed in a statement that the Defense Minister Florence Parly made the

[decision](#) on May 2nd. The draft multiyear budget that is set to run from 2019-2025 includes the funding for six Barracuda class submarines, delivery of which is scheduled for 2025. The [Barracuda SSN program](#) started in 2006 when France's Defense Ministry awarded a contract for nuclear-propelled fast attack submarines to state-owned warship builder DCN and nuclear energy group Areva-TA. The Barracuda program will meet the French Navy's operational mission needs by providing replacements for its 6 current Rubis Amethyste class nuclear attack submarines. The Barracuda's are roughly the same size as the Royal Navy's existing SSN Trafalgar Class boats, and twice the size of the current vessels. The program's

total value was initially set at then \$11.13 billion but has since risen to over \$12.32 billion.



SSN Barracuda cutaway

In December 2006, France's Defense Ministry awarded a contract for nuclear-propelled fast attack submarines to state-owned warship builder DCN and nuclear energy group Areva-TA. The contract's total value could be as high as EUR 8.6 billion, and it is set up as an initial EUR 1.0-1.4 billion contract (reports vary), followed by 6

© DCN

options (*tranches conditionnelles*) to cover development expenses, the production of more submarines, and through-life support during their first years of operational service. All ships wear out over time, and the repeated squeezing and relaxing experienced by submarine hulls make their replacement times less negotiable. The USA began introducing their new-generation NSSN Virginia Class fast attack boats in 2004, and Britain's problem-plagued SSN Astute Class followed in 2010. Now, it's France's turn to renew its SSN fleet, as DCNS works to supply 6 Barracuda Class submarines between 2016-2027.

The Barracuda SSN Program



The program's total value was initially set at EUR 7.9 billion (then \$11.13 billion), but has since risen to EUR 8.6 billion (\$12.32 billion in 2011). The contract was set up as an initial EUR 1.0-1.4 billion contract (reports vary), followed by 6 options (*tranches conditionnelles*) to cover production of the other boats, development, and support during their first years of operational service. Subsequent orders have not revealed costs per boat, however, just inferences about creeping overall program costs. The first Barracuda Class submarine is still expected to enter service in 2017, with the other 4 following every two years (2019, 2021, 2023, 2025) and then the 6th and last boat due to be commissioned in 2026-2027. Within the DCNS/Areva TA consortium, DCNS will act as the submarine prime contractor, including responsibilities as overall architect, platform and propulsion system prime contractor, systems integrator, nuclear safety studies coordinator and through-life support prime contractor. The Barracuda Class will be built at DCNS' Cherbourg shipyard. Areva TA will act as prime contractor for the nuclear powerplant, and NucAreva will take around 15% of the contract's value. The nuclear propulsion unit, derived from that developed for the "Le Terrible" SSBN nuclear missile submarine, will be supplied by Areva TA under the prime contractorship of the French atomic energy commission (CEA). Other contractors include:

- Colfax-Imo Pompes (oil pumps & fluid handling)
- EADS Astrium (life support)
- GE Oil & Gas subsidiary Thermodyn (turbo-generators and propulsion turbines)
- Sagem subsidiary Safran (surface detection system – radar & optronic masts)

Per the planned dates above, the team has yet to launch a submarine, let alone deliver one. Submarines under construction or on order include:

- **Suffren**
- **Duguay-Trouin**
- **Tourville**

Other named submarines of class include:

- **Duquesne**
- **Dupetit-Thouars**
- **De Grasse**

Replacing the Rubis: The Barracuda Class SSN



Rubis Class SSN

The Barracuda program will meet the French Navy's operational mission needs by providing replacements for its 6 current-generation nuclear attack submarines. Displacing 5,100-5,300

tonnes submerged, at 99m long and 8.8m in diameter, the new Barracuda Class will be about twice as large as the Rubis Amethyste Class boats they will replace. Indeed, they are roughly the same size as the Royal Navy's existing SSN Trafalgar Class boats. They are designed to remain smaller than the USA's new 7,300t Virginia Class SSNs, however, or the new and slightly larger British Astute Class SSNs. Despite their relatively modest size, the Barracudas will have sharp teeth. A set of 4 x 533mm launch tubes will be able to fire its stored armament of up to 20 heavy weapons, in whatever combination of new short range F21/Artemis heavyweight torpedoes, medium-range SM39 Exocet anti-ship missiles, A3SM (Mica) anti-aircraft missiles, and stealthy long range MdCN Scalp Naval cruise missiles is on hand. The class will also be able to accommodate mines or carry 12 commandos, whose equipment can be carried in a mobile pod attached aft of the sail. One key unanswered question will be the type's ability to launch and retrieve UUV robots, beyond options that can be launched and recovered via torpedo tube.



A3SM MICA - <https://youtu.be/gJZf7scDnQ0>

A diving depth of over 350 meters (about 1,150 feet) and a top speed of over 25 knots are both forecast by DCNS. The Barracuda Class' regular crew level will be 60, and the boats will be designed for operational cruises of up to 70 days, in contrast to the current Rubis Amethyste Class' 45 days. As a final advantage, Barracuda's K15-based nuclear propulsion is designed to offer 2 substantial advantages over existing French boats. The first advantage is that instead of requiring refueling once every 7 years, the new design will extend its time between RCOHs (refuelling and complex overhauls) to 10 years. This translates into higher at-sea availability over the life of each ship. The USA's Virginia Class, whose reactors aren't forecast to need refueling over the boat's expected 30-year life, are significantly ahead in this respect. Nevertheless, the Barracuda's propulsion will have a second advantage that Virginia Class boats won't share: it plans to use same nuclear fuel that powers French civilian nuclear power stations. Given France's significant use of nuclear power, this commonality is expected to drive fuel costs down sharply.

SMX Ocean: A Conventional Export Derivative



SMX Ocean - <https://youtu.be/ug6RakSBuzQ>

At EuroNaval 2014, DCNS unveiled their 4,750t SMX Ocean diesel-electric attack submarine concept. It's much closer to operational reality than past concepts, as it's based on the basic Barracuda layout, masts, and combat system. Switching out the nuclear reactor does create a bit more space, even with 2nd generation fuel cell technology added to give the submarine submerged endurance of 3 weeks. A cable-and-collar "saddle" system can be added for deployment and retrieval of UUVs from a mid-body chamber, and a detachable mobile pod aft of the sail can carry a special forces swimmer delivery vehicle. Behind the UUV bay, a 6-shooter for vertically-launched cruise missiles like MBDA's MdCN/ Scalp Naval is complemented by internal frontal space for 28 weapons in any combination of heavyweight torpedoes, Exocet anti-ship missiles, A3SM anti-aircraft missiles, or mine packages. Items like the Vipere tethered communications and surveillance buoy round out the package. The submarine is touted as a complement for carrier battle groups, but the truth is that their speed requirements tend to stretch the SMX Ocean's capabilities, which top out at 20 knots and lose efficiency well before that. It would fare rather better as a companion to slower amphibious assault groups, but its real markets may be more specific. Australia is looking for a long-range fleet of modern submarines, and their push to negotiate directly with the Japanese for the 4,000t+ Soryu Class may be forced toward competitive bids for political reasons. Meanwhile, India has just approved a ["Project 75i" program](#) to add 6 locally-

built submarines beyond their forthcoming Scorpene fleet. A relationship extension based around Barracuda hulls would build on already-proven industrial relationships and training, and allow for excellent weapons commonality with the Scorpene fleet. It would also complement both the scope of India's maritime interests, and local work fielding and refining [their own](#) nuclear submarine design.

Source: <https://www.defenseindustrydaily.com>

Passive radar activists

19.11.2014

A new concept of small, mobile, virtually undetectable radars is quietly gaining traction in the air surveillance community. Passive radar systems, which emit no signals, could complement conventional radar coverage in a number of important applications. As the technology reaches maturity, we take a look at the key benefits and assess the real-world potential of this future generation of sensors.

Discretion assured

Radars detect objects by sending out electromagnetic signals and listening to the echoes that bounce back. So a conventional radar (short for RAdio Detection And Ranging) requires both a transmitter and a receiver. What's different about a passive radar is that it doesn't have its own transmitter but uses some of the many existing sources of electromagnetic energy, such as low-frequency broadcast transmitters, and simply listens to the reflected signals. The Multistatic Silent Primary Radar (MSPR) developed by Thales Air Systems, for example, uses FM radio transmitters as the energy source. Passive detection techniques have been used since the Second World War, when operators donned headsets to listen for incoming aircraft. But with the computing power and sophisticated algorithms available today, passive radar is a viable technology that offers military commanders a reliable way to extract meaningful information from the background noise. Passive radar systems offer a number of key benefits. **First**, they are hard to detect by conventional means. Electronic sensors cannot pick them up because they do not transmit their own signals. They have no dedicated transmitters generating heat, so they cannot be detected by their thermal signatures. And although the broadcast antennas are visible to the naked eye, they are generally small and quite difficult to spot. This high level of discretion is a major advantage in air surveillance, because potentially hostile or non-cooperative aircraft have no way of knowing that they are being watched. The **second** major benefit of passive radars is that they are relatively easy to set up. They do not operate in their own frequency band so there is no need to request frequency allocations before using them.

Who needs passive radar?

Major nations are already extensively equipped with conventional radar systems, but surveillance coverage is incomplete because of terrain features like mountains and valleys — and simply because the Earth is round. Passive radar offers an alternative to the gap-filler radars often needed to complement conventional air surveillance sensors. And a 3D air picture generated by a multistatic passive radars can provide the same kind of information as a conventional radar system. By combining conventional radars with passive radars, users have access to a complete air picture without needing to worry about which sensors are being used. Small UAVs now pose as a significant threat to both military installations and industrial facilities. Passive radar could maintain surveillance of the airspace immediately surrounding a strategic site, and has the potential to enhance security and provide effective protection from these new threats.

Early warning

The earlier a threat is detected, the better the chances of neutralising it successfully. The Direction Finding System (DFS) developed by Thales Communications & Security relies on technology similar in some respects to passive radar. Deployed concurrently with a passive radar system, the DFS can detect an aircraft at a range of up to 200 km — early enough to observe its behaviour and determine whether it is a threat or not. The DFS works by listening to the aircraft's radio frequency transmissions (GPS, radio communications with the ground, etc.) to determine its 2D map coordinates and flight path and observe its behaviour for long enough to decide whether it constitutes a threat. The passive radar takes over when the aircraft is within a range of 50 km and determines its position in three dimensions. On average, that still leaves about 15 minutes to react if need be. Industrial operators have shown considerable interest in the potential of this type of solution for protecting their strategic sites. Another major benefit of passive radar is its ability to detect low-observable targets such as stealth aircraft, which are designed to be invisible to conventional radar sensors. Passive radar systems sift through a host of signals of opportunity, such as low-frequency FM radio broadcasts, and determine how they are blocked or altered by having to pass through or around objects. A stealth aircraft therefore has exactly the same the probability of being detected as a regular aircraft, making the technology of particular interest to military planners.

Timescale for deployment

Despite the enormous potential of this technology, no passive radar systems have been deployed to date. Most air forces are already extensively equipped with conventional systems, and they like to be in full control of the transmit and receive chain of each of their radars. Using signals of opportunity that are not part of their own systems would be a major revolution, and there are few signs that such a cultural shift will take place any time soon. The civil aviation industry is examining the potential for adopting this technology as a less expensive alternative to the conventional radars used for approach and landing. Here again, given the exacting safety and dependability requirements of the civil air transport sector, signals of opportunity are not deemed sufficiently reliable. However, studies are underway as part of the SESAR programme to evaluate the potential of passive radar systems using dedicated radio transmitters. Depending on the findings of these studies, the future role of passive radar in civil airspace surveillance should be clearer by about 2020. Meanwhile, the

passive radar community is continuing to develop the technology further, confident that it will eventually find its place on the market. Thales Air Systems has an R&D team of about 10 people working in this field, and all the other major players in the defence and aerospace industry are investing in the technology. The low cost of the hardware involved also makes passive radar a particularly attractive field for academic researchers, who are developing sophisticated processing algorithms to improve passive radar performance as well as investigating the potential of new digital broadcasting signals.

Source: <https://www.thalesgroup.com>

Please note that this article already is 4 years old, very old in technological terms. Progress may well be much further down the road.

Angola confirmed as Super Dvora Mk 3 patrol boat customer

Written by defenceWeb, Thursday, 10 May 2018



Angola is the customer for four Super Dvora Mk 3 patrol boats ordered from Israel Aerospace Industries (IAI) in 2015. At the time the deal was announced, IAI only said the vessels were going to an undisclosed African country and that they would be delivered in 2016. According to Angola's official government gazette published on 1 March this year, budget information has revealed that the country is spending \$4.3 million on equipment for its Dvora vessels, including radars. The Super Dvora Mk 3 is currently in service with several navies worldwide. The type has an overall length of 27 meters, a top speed in excess of 40 knots, and displaces approximately 50 tonnes. It has a range of over 1 000 nautical miles at 10 knots. The type can be armed with 20, 23, 25 or 30 mm cannons, 7.62 or 12.7 mm machineguns and 40 mm grenade launchers. These can be mounted on

automatic turrets or manually aimed. Missiles can also be fitted. Accommodation provides for 12 crewmembers. The Super Dvora MK 3 can be propelled by articulating surface drives (ASD) or waterjets. The ASD system enables operation in extremely shallow water at minimal drafts of 1.2 metres. The ASD system is also highly manoeuvrable, steering the craft with thrust vectoring. Angola's most recent budget also makes provision for the acquisition of six transport helicopters for \$52 million and budgets \$9.5 million for maritime patrol vessels. According to the Stockholm International Peace Research Institute's Arms Transfers database, in 2016 Angola ordered several patrol vessels from France as part of a 495 million euro deal, but not much is known about this deal. In 2016 Angola ordered two fast patrol craft from Whitehead Sistemi Subacquei for around 7 million euros. Angola has already taken delivery of a number of helicopters over the last decade, including four A109K and two AW139 helicopters from AgustaWestland (Leonardo Helicopters) for use by the Navy; eight Mi-171Sh armed transport helicopters from Russia and 12 second hand and upgraded Mi-24P/Mi-35P attack helicopters from Russia.

Source: <http://www.defenceweb.co.za>

Is it a ship or a network?

9 May 2018|John Blaxland



Image courtesy [RP Defense](#).

The government is weighing up its options when it comes to the anti-submarine warfare (ASW) capability requirements for the forthcoming decision on Project SEA 5000—the multi-billion dollar future frigate project. The proliferation of

submarines in the Indo-Pacific certainly warrants close attention being paid to this decision. For starters, we need a clear understanding that ASW is about much more than just what can be expected from one ship, no matter how sophisticated the fit-out. But who understands this esoteric field? For many of us, the Cold War thriller starring Sean Connery, *The Hunt for Red October*, and the German-language movie set in World War II, *Das Boot*, conjure up the classic image of how submarines are hunted. The hunt is as much about human acumen—the ship captain versus the submarine captain—as it is about technological capability. The image, often enough, is one of ships with sonars and depth charges chasing

submarines while the submarines maintain their stealth until they fire a torpedo (or missile). Necessity is the mother of invention, we're told, and wartime necessity drove a spiral of development in detection technology and countermeasures in a 'hider-finder' competition. The development of surface electromagnetic detection was followed by sonar and other acoustic and magnetic-anomaly detection systems that, when combined, limited the effectiveness of submarine attacks. But times have changed. The one-on-one hunter-killer scenario we sometimes think of from World War II or early in the Cold War is no longer what can be expected. Now, submarines are even harder to detect and, as a result, the World War II concept of a single ship hunting a submarine is of limited utility. That's because—in the case of a one-on-one situation, with only on-board sensors available to conduct detection work—the submarine would always have an advantage. Building on evolved capabilities, ASW today involves coordinating a suite of networked sonar and electromagnetic sensors aloft, on the surface and underwater to detect, track, deter and potentially attack hostile submarines. Active sonar is important to detect submarine threats within range, but also to degrade the submarine's effectiveness since it will wish to stay out of detection range. Passive sonar has some merits, but a modern submarine will almost always have a detection range advantage over a ship. Modern-day ASW harnesses a disparate array of complementary technologies installed on a variety of underwater, surface and aerial platforms that, when combined, provide a form of corroboration—or triangulation—to identify what's otherwise an increasingly stealthy platform. This means that ASW today isn't the purview of a single ship performing blue-ocean searches for the wayward submarine. Anti-submarine warfare is based on coordinating sonar and electromagnetic sensors from aircraft, helicopters and ships, as well as a range of semi-autonomous, unattended systems, to detect and track their targets. This networking of capabilities is known as sensor netting and cooperative engagement. The key role of an ASW ship is to protect the other surface vessels working as part of a team. Its greatest value in that regard is its presence, in particular its optimised sensors and multi-mission capability. The variety of assets available not only helps to provide complementarity, but also allows for a degree of redundancy of sensors. In an age of emergent swarms of platforms, networked weapon systems and the rise of artificial intelligence, there's added urgency for plans to be developed that take this complexity into account. What this means is that cutting-edge ASW is basically moving from being largely platform-intensive to being based around a wide range of orchestrated assets operating as a networked array of systems working with a common purpose. What is more, nowadays the requirement isn't so much to be able to detect and possibly defeat a potentially adversarial submarine. Rather, particularly in scenarios short of declared war—as has been the case in many post-World War II conflicts to date—the ASW force must be able to constrain the freedom of action available to adversary submarines and, in effect, to scare them away and thus render them ineffective. The Royal Australian Navy (RAN) and the Australian Defence Force (ADF) should be mindful of the complex and complementary array of sensors and related skills required for effective ASW operations. And when picking an appropriate ASW platform, decision-makers should be mindful of the suite of complementary elements that constitute a modern ASW capability. There are implications arising from these observations for the future frigate decision. The chosen vessel needs to be seen not just as a stand-alone platform, but as part of a networked suite of capabilities, including those found in other naval platforms and in other armed services, coalition forces and other national technical collection means. It must not be only interoperable with the wider RAN and ADF, but also able to operate with various new and emerging systems such as aerial and underwater drones in future years.

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Source: <https://www.aspistrategist.org.au>