CROWDED SKY
CONTESTED SEA

The use of drones over the South & East China Seas
Drone Wars UK is a small British NGO established in 2010 to undertake research and advocacy around the use of armed drones. We believe that the growing use of remotely-controlled, armed unmanned systems is encouraging and enabling a lowering of the threshold for the use of lethal force as well as eroding well established human rights norms. While some argue that the technology itself is neutral, we believe that drones are a danger to global peace and security. We have seen over the past decade that once these systems are in the armoury, the temptation to use them becomes great, even beyond the constraints of international law. As more countries develop or acquire this technology, the danger to global peace and security grows.

Supported by a grant from the Foundation Open Society Institute in cooperation with the Human Rights Initiative of the Open Society Foundations.

Note: The term ‘drone’ is used interchangeably with ‘Unmanned Aerial Vehicle (UAV)’
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In the last five years, across South East and East Asia, relations between states contesting claims to islands, reefs and coastal waters – and their economic and strategic value – have significantly deteriorated. As well as some historic political discord in the region, the states that surround the South and East China Seas are also caught up in the geopolitical animosity between the US and People’s Republic of China (China) who both seek influence over this strategically important region. China does so because it is the dominant power in the region and relies on the shipping lanes and maritime resources of the both seas. The US, meanwhile, views the region as essential for global trade and diplomacy, where open access acts as a limit on China’s power.

The result is not a regional arms race (since who of its neighbours could compete with China?) but, nonetheless, smaller nations in the region are determined to modernise and upgrade military equipment to contend with growing threats. Modernisation has, of course, included increased spending on unmanned aerial vehicles (UAVs), commonly known as drones. This report provides a brief background to the inter-state tensions and outlines the growing use of drones in the region. It details which larger drones are active and which are under development for use around the South and East China Seas and the problems that this increased militarisation poses for the region.

At the time of writing, relations between China, some of its neighbours, and the US are increasingly strained. At a time when tensions over Taiwan, Hong Kong, coronavirus and trade negotiations are simmering, the news that the USA and Taiwan are negotiating the sale of the MQ-9B SkyGuardian drone, a maritime variant of Reaper, has thus drawn a stern response from China. At the same time, China has unveiled a new air-to-surface missile system, and all three parties (China, Taiwan and the US) are carrying out live fire drills in the region.

1 Lucie Beraud-Sudreau, ‘Asia’s defence budgets dispel ‘arms race’ myth’, International Institute for Strategic Studies (IISS), <https://www.iiss.org/blogs/analysis/2018/05/asian-defence-budgets>, 20 May 18. Although several news headlines suggest a significant increase in military spending, the IISS interpretation of data shows that much of the rise in spending has remained in line with economic growth.
The use of armed drones – both within and beyond armed conflict – for targeted strikes by the US, UK and Israel is well known, as is their use in Iraq and Syria by US-led coalition forces. Yet, whilst the use of unarmed drones has drawn less attention, analysts have pointed out these systems also significantly expand military capability and enable lethal operations. Without internationally agreed standards on the use of drones, both surveillance and armed systems, their use is becoming increasingly dangerous. The relative ease with which they can be used, together with the perception by the operator that they are not as aggressive as a manned aircraft – lowering the threshold for the use for force – means that these systems can in fact be very destabilising.

As the proliferation of surveillance drones continues across the South East Asian region, and with armed drones on the horizon, this not only increases military build-up but adds a new and complicating factor to the tensions and risks in this volatile region. In a region where inter-state relations are fragile, it is important to understand both the context and the role that unmanned systems can play in creating further instability. It is to these two aspects of relations in South East Asia that this report now turns.

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The importance of the South and East China Seas

Both the East and South China Seas are important waterways for global trade. For example, close to one third of global trade passes through the South China Sea every year.\(^5\) Both seas are also rich in natural resources, such as fish, and gas and oil under the seabed. For these two reasons, the territorial claims to their small islands and reefs are hotly contested. Territorial disputes date back to the 1895 Sino-Japanese War and the re-distribution of territories after the Second World War, when the long-term control of certain islands groups remained unclear.\(^5\)

China, which claims many of the islands, has based these claims on the ‘nine-dash line’. This was originally an 11-dash line drawn across a map of the South China Sea by the nationalist Chinese government in 1947 and later adopted by the Communist government who revised the line to nine dashes in 1952, indicating where it regarded its boundaries. China also maintains a unique interpretation of the principles of freedom of navigation and Exclusive Economic Zones (EEZs). These claims are disputed by other states in the region, and the US, who look to the standard international rules on territorial waters to establish claims to islands and reefs.

The rise of China

The widely accepted principle in international law is that a state’s territory extends 12 nautical miles from shore, and an EEZ 200 miles from shore. Under the United Nations Convention of the Laws of the Sea (UNCLOS), states have a right to control economic activity within those 200 miles. However, they do not have the right to say what vessels (including naval vessels) pass through those waters. Control over what ships enter national waters is only granted within the 12 nautical mile limit. China, on the other hand, contends that a state (or at least itself) has exclusive rights over any activity within the 200-mile EEZ.

Despite the unsettled nature of these competing claims, China has pressed ahead with a programme of building up military bases on islands that it claims, as well as a programme of artificial island building through reclaiming land from

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6 ‘China’s Maritime Disputes’, Council for Foreign Relations, last accessed 26 Feb 20
the sea. Disputed islands include the Spratly Islands, Paracel Islands, Senkaku/Diaoyu Islands and Scarborough Shoal.  

Indonesia, the Philippines, Malaysia, Vietnam, and Brunei all dispute Chinese claims to the Spratly Islands, and Vietnam disputes Chinese claims to the Paracel Islands. Japan, Taiwan and China all claim rights over the Senkaku/Diaoyu Islands but Chinese vessels have patrolled and disrupted access to these islands, and China also declared an Air Defence Identification Zone (ADIZ) that includes some contested airspace over the Senkaku/Diaoyu Islands. Finally, Scarborough Shoal is also claimed by the Philippines as part of its EEZ.

In the hope of resolving or at least managing these disputes, a Code of Conduct for the South China Sea was created in 2012 by the Association of South and East Asian Nations (ASEAN), a regional grouping of middling and smaller states made up of Indonesia, Thailand, the Philippines, Malaysia and Singapore, Vietnam, Laos, Cambodia, Brunei and Burma/Myanmar. China signed up to this Code but it is clear that ASEAN has not been able to resolve disputes, with China continuing to pressurise neighbouring countries to accept its claims. Beijing’s attempts to compel other countries to accept its territorial claims have been achieved either through bilateral agreements that circumvent regional codes, or through shows of force.

China’s ability to assert itself in the region is, in no small part, due to its economic rise over the past two decades. In 2000 the Chinese Communist Party adopted a 20-year strategy of ‘accelerated growth’, first focusing on domestic economic development and then, after 2012, turning to focus on regional and global connections – China’s soft power in the world. This strategy, named the Belt and Road Initiative (BRI) has seen China invest heavily in infrastructure projects that increase its connectivity across Asia and further afield, along a ‘new silk road’. It has tied China to the economic development of neighbouring states and, in some cases, their security and defence infrastructure. Despite this economic investment and some closer bilateral partnerships on specific issues, commentators judge that there is a “deficit in strategic trust” in South East Asia and that China is unlikely to be able to “change regional and security norms.”

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7 Senkaku or Diaoyu Islands, as they are known respectively in Japan and China.
10 Xue Gong, ‘Non-traditional security cooperation between China and south-east Asia: implications for Indo-Pacific geopolitics’, International Affairs, 96/1 (2020), pp. 29-48, here p. 47
With regard to Vietnam, for example, after a brief war in 1979 there has been discord between the two communist neighbours, yet Vietnam has historically steered clear of any alliance with the US. Although recent years have seen ‘friendship meetings’ between the Vietnamese and Chinese militaries, and Vietnam describing China as their “good neighbour, good comrade and good friend to the North,” tensions have increased and Vietnam has moved closer to the US. Since the early 2000s, Vietnam has had a $200mn oil and gas project under development in its EEZ in the South China Sea. However, in 2011 Chinese ships began using force against Vietnam’s survey vessels, cutting and snagging equipment, and in 2017 China threatened to attack Vietnamese positions in the South China Sea if the programme was not halted. In 2018, China deployed 40 ships to a position two days sailing from the drilling rigs and Vietnam soon after halted the entire programme. However, at the same time, the US Navy sent one of its largest ships, the aircraft carrier USS Carl Vinson, to dock in Vietnam, allowing Vietnam to send a message to Beijing that it would now turn to the US for help if needed. From the Chinese government’s point of view, the presence of the USS Carl Vinson in support of Vietnam, coupled with the lifting of the US’s long arms embargo on Vietnam is a sign of US meddling in the region.

In addition, Indonesia, despite ties with China and the purchase of military equipment including CH-4 drones, has experienced intimidation from China over fishing rights. In January 2020 the Chinese coast guard accompanied Chinese fishing boats to the island of Natuna, off the north coast of Indonesia. Although competition between fishing vessels is fierce the world over, Chinese state support was seen as a provocation by Indonesia’s President Joko Widodo, who stated that Indonesia’s sovereignty was at stake and warships would be deployed if any further intimidation occurred.

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China-US Relations

China’s economic and political ascendency was also aided by the US focus on the Middle East after 2001 and its ‘War on Terror.’ However, during President Obama’s tenure, the US began to talk of a rebalancing or “pivot to the East.” The message to Beijing was that this re-focus on the East was not about containment or domination, simply furthering US interests in the region. Today, under President Trump, Obama’s conciliatory approach has been abandoned by Washington in favour of direct attempts at containment, a policy which China regards as aggressive and seeks to resist.15

Trump’s main strategy in the region is for a Free and Open Indo-Pacific (FOIP), a concept that was raised on his first visit to the region in 2017.16 This concept has two main aims. Firstly, to assert the openness of the waterways, as understood under the UNCLOS, and secondly, to extend the parameters of the region from the ‘Asia-Pacific’ to ‘Indo-Pacific’ to include India. India, Japan, Australia and the US make up the Quad, a so-called ‘democratic diamond,’ encircling the region.17 The adoption of the term Indo-Pacific has been popular with the Quad and all members have begun to produce papers that use the term, as have members of ASEAN. China on the other hand has continued to use ‘Asia-Pacific’ and sees the adoption of the term Indo-Pacific as a subtle way of the US containing China.18

The other element of FOIP – asserting freedom of navigation in international waters as described by UNCLOS – has seen the US step up their Freedom of Navigation patrols in the South China Sea over the past two years, rising from three in 2016 (under Obama) to nine in 2019. These patrols have deliberately passed within 12 miles of islands that China has made claims to, whilst keeping to the internationally accepted 12-mile limit.19 Given China’s alternative definition of national and international waters, this has been portrayed in Chinese media as the US stirring up trouble in the region.20 Towards the end of 2019, at a meeting of defence ministers in Bangkok, Wei Fenghe, the Chinese defence secretary, called on the US to “stop flexing its muscles” and “to stop intervening in the South China Sea and stop military provocations.”21 Mark Esper, the US Defense Secretary, responded by saying that Chinese behaviour in the South China Sea amounted to a “perpetual reluctance” to adhere to international norms and, while on a visit to Vietnam, denounced China’s “intimidation” of smaller states in the region.22

17 He and Li, Understanding the Dynamics of the Indo-Pacific, p. 3
18 He and Li, ibid, pp. 1-2
Maritime security and the need for surveillance

The stand-off between the US and China has had implications for the security and defence programmes of the other states in the region. ASEAN has tried to take a diplomatic and conciliatory approach to conflicts in the region, but the effect is limited by the member states’ competing interests for South China Sea resources and US-Chinese politically motivated intervention. Intervention from the US and China has taken the form of military aid to the region and economic support such as BRI investments. The overlapping and sometimes contradictory nature of the ASEAN members’ relationship with China and the US means that there are few region-wide security norms or protocols on dealing with issues that arise. Instead, in an atmosphere of competition and mistrust, there is wide scope for misunderstanding.  

Whilst some states have strong historic ties with China, others are only too happy to accept US support and adopt the concept of FOIP, with others trying to balance ties with both super-powers. The Philippines for example, has traditionally relied upon US-supplied defence equipment, either purchased or donated, and there remains limited trust of China within the army. However, current President, Rodrigo Roa Duterte, has publicly taken an anti-American stance that has allowed Beijing to break in to the market in the Philippines by donating equipment and increasing the number of Chinese companies that apply to exhibit at the Asian Defence, Security and Crisis Management Exhibition and Conference (ADAS) in Manila. On the other hand, the small independent island nation of Palau, located to the East of the Philippines, has very recently invited the US to “establish a regular US military presence” on the island.  

In addition, Japan, a member of the Quad and staunch ally of the US, has also signed security agreements with the Philippines and Vietnam, providing both with sizeable amounts of military aid. Japan has also taken part in joint military exercises with the US.  

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24 Anwar, ‘Indonesia and the ASEAN outlook’  
It is in such a context that regional defence spending increased by 33%, in real terms, between 2009 – 2018. Although defence spending as a percent of GDP in the region has remained steady and lower than the global average, this real term increase has allowed Asian militaries to modernise and develop their capabilities. Such modernisation is allowing South East Asian states to expand the geographic area in which they can operate and, thus, operate closer to ‘unfriendly’ forces. As a region of island and coastal nations, much of this spending has been for naval equipment such as new warships, patrol vessels and Maritime Patrol Aircraft (MPA). But the perceived need for greater surveillance in the South and East China Seas means that spending on drones has inevitably increased as well. Such a situation, Drone Wars UK contends, brings new risks.

In September 2013 the first signs of drones as a serious threat to peace and security in the East China Sea became clear. After the Second World War the Senkaku/Diaoyu Island chain was administered by the US but passed in to Japanese control in 2012 after a Japanese family who owned property on the island abandoned it. In 2013 on the first anniversary of the Islands returning to Japanese control, China sent one of its BZK-005 Medium-Altitude Long-Endurance (MALE) UAVs towards Japanese airspace, prompting Japan to scramble fighter jets in response. An op-ed in the influential US magazine, Foreign Policy, argued that that China had “sparked a dangerous unmanned arms race,” and that this “unmanned provocation” in the East China Sea represented Chinese attempts to “deny adversaries freedom of manoeuvre over, on and under the East and South China Seas.”

28 Wezeman, Arms Flows to South East Asia, p. 46
29 Wezeman, ibid, p. 46
In response, the Japanese Ministry of Defence released new Rules of Engagement for drones, stating that drones that did not leave Japanese airspace after being asked to do so would be shot down. China replied that such actions would be considered an act of war. A year later, the US stationed two Global Hawk High-Altitude Long-Endurance (HALE) drones in Japan in order to “bolster maritime security in the region.”

Satellite images in 2016 also revealed that a BZK-005 drone belonging to the Chinese military had been deployed to Woody Island, one of the Paracel Islands in the South China Sea where China has built up military bases, but it is not clear if this is an ongoing deployment. The BZK is the People’s Liberation Army’s (PLA) most extensively deployed drone and there have been numerous sightings of it in flight around the South and East China Seas.

Arms companies saw a new market opening up and, since 2015, have been pushing new unmanned technology at regional arms fairs. They saw a particular opening for drones that could be used for maritime surveillance, either with specialist surveillance equipment, or with Vertical Take-Off and Landing (VTOL) capabilities that can be easily launched from ships. Today, China and the US are thus no longer the only states deploying large military drones over the South and East China Seas.

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32 Gettinger, ‘An Act of War’
Drone acquisition, manufacturing and deployment

Several states had been operating small drones since the early 2000s but since 2015 there have been some sizeable new acquisitions and the presence of larger, further reaching and more persistent drones has been steadily increasing around the South and East China Seas.

Singapore, with one of the region’s most advanced air forces, outlined a ‘Strategic Road Map’ in 2014, which emphasised the need for operational UAVs in response to China’s military rise and the corresponding militarisation of Asian nations. By 2016 the Royal Singapore Air Force (RSAF) was operating Israel Aerospace Industries’ (IAI) Heron 1 system as a replacement for its IAI Searcher 2, a significant step up in capability. 38

Malaysia has deployed indigenously manufactured drones since 2008, originally to assist with an insurgency in Sabah state, but since 2017 has increased maritime surveillance capabilities, deploying the Thales Fulmar with the coast guard for anti-piracy and smuggling patrols as well as border surveillance. 39

In 2015, Vietnam’s Ministry of Public Security and Academy of Science and Industry unveiled a High Altitude Long Endurance (HALE) UAV, called HS-6L, but little has been heard or seen of it since. 40 Then, in July 2016, it was rumoured that the Vietnamese armed forces moved rocket launchers to the Spratly chain of islets. Combined with their Orbiter tactical UAVs, the military could target “hostile land-based or sea-based assets.” 41 Vietnam also signed a deal with


Israel in 2018 for the Heron 1.\textsuperscript{42} Taken together these developments point to a growing policy of monitoring and defending assets in the South China Sea.

The Philippine armed forces have also extended their surveillance capacity over the last few years, signing a contract with Elbit Systems for three Hermes 450 and nine Hermes 900 drones.\textsuperscript{43} Delivery of the airframes began in early 2020 and they are scheduled to be in service with the Air Force in 2021, possibly at Palawan or Sulu, close to the disputed Spratly Island chain.\textsuperscript{44}

Another regional actor that is keen to boost its defences against China is Taiwan. The Taiwanese government’s security priority is to defend itself against forcible reintegration into China.\textsuperscript{45} Domestic firms are currently developing a fleet of loitering munitions, or ‘kamikaze drones’. A tactical drone, the Chung Shyang 2, is in service with the Navy and made its first public flight in January 2019.\textsuperscript{46} This has reportedly been used to monitor Chinese military activity along the coast.\textsuperscript{37}

However, the most recent - and quite startling - news is that the US State Department and Taiwan are negotiating the transfer of the MQ-9B Sky Guardian variant of the Reaper to Taiwan. At the time of writing, the sale still needs to be approved by the US Congress and may not include missiles. It is the first export deal of its kind since the Trump administration announced it was reinterpreting its understanding of the terms of the Missile Technology Control Regimes (MTCR). These drones, which are configured for maritime use, could give Taiwan the reach to keep watch on Chinese military bases and troop movements.\textsuperscript{48}

China, for its part, launched a new drone programme in the South China Sea in September 2019. The Ministry of Natural Resources (MNR) set up a “far reaching reconnaissance system reliant on drones to strengthen its ability to conduct surveillance operations” in hard-to-reach areas of the South China Sea. Chinese authorities said this was to overcome the problems of cloud cover associated with satellite surveillance whilst monitoring salinity, algae and temperature in the seas, which are indicators of the presence of natural resources under the seabed.\textsuperscript{49} Persistent monitoring capability is also a useful reconnaissance tool and some commentators noted that the MNR has been known to work with the PLA Navy (PLAN).\textsuperscript{50}

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\textsuperscript{43} Frances G. Mangosing, ‘Philippines receives unmanned aerial vehicles from Israel’, The Inquirer, <https://globalnation.inquirer.net/180461/philippines-receives-unmanned-aerial-vehicles-from-israel>, 30 Sep 19


\textsuperscript{45} Historically, both China and Japan have ruled Taiwan. Taiwan claims that after the Kuomintang were defeated in mainland China by the Chinese Communist Party and fled to Taiwan in 1949, where they maintained the Republic of China government, that the current People’s Republic of China (mainland Communist-ruled China) has no claim over Taiwan. China does not accept this and seeks the full reintegration of Taiwan, whilst many Taiwanese would like complete independence. For more detailed information on the history and where things stand today, please see ‘What’s behind the China-Taiwan divide?’, BBC News, <https://www.bbc.co.uk/news/world-asia-34729538>, 02 Jan 19

\textsuperscript{46} Wang Cheng-Chung and Evelyn Kao, ‘Albatross drone makes first fly-over demonstration in Pingtung’, Focus Taiwan, <https://focusntaiwan.tw/politics/201901240016>, 24 Jan 19

\textsuperscript{47} Zachary Keck, ‘Taiwan’s Using Drones to Spy on China’, The Diplomat, <https://thediplomat.com/2014/07/taiwans-using-drones-to-spy-on-china/>, 13 Jul 14

\textsuperscript{48} Stone, ‘Exclusive: Taiwan in talks’


There is also an underwater drone in development by Chinese scientists. According to reports it is three metres long, torpedo shaped and has completed a 37-day test covering 2,000km autonomously. Travelling for this distance, the drone would provide surveillance capacity around the Paracel and Spratly Islands from China’s Hainan naval base.\(^1\)

In response to the increased presence of Chinese drones and Beijing’s foreign policy, the US announced a deal to provide Scan Eagle 2 UAVs to four South East Asian nations in May 2019, as part of the Maritime Security Initiative for the Indo-Pacific.\(^2\) The deal, worth $47mn, will see 24 Scan Eagle airframes donated to Malaysia, Indonesia, the Philippines and Vietnam – twelve, eight, eight and six respectively.\(^3\) Malaysia has already received the first batch of six, deploying all of these aircraft with the Malaysian Navy.\(^4\) Although these drones are small in comparison with some of the acquisitions detailed above, they have a much longer endurance and range than many small drones. Moreover, by providing drones to these South East Asian states, the deal is a strong statement from the US. It has chosen to provide the drones to states that encircle the South China Sea. There are, of course, many ways in which surveillance drones could be used by these countries (for example, to tackle illegal fishing, trafficking, piracy and militant groups) but their presence on the South China Sea serves to increase the military build-up in this area, as most will be deployed with navies and coast guards.\(^5\)

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\(^3\) Borton, ibid


\(^5\) Mike Yeo, ‘Commentary: Was tough talk on South China Sea to boost US export of drone to Southeast Asia?’, Channel News Asia, [https://www.channelnewssasia.com/news/commentary/south-china-sea-us-sell-surveillance-drones-southeast-asia-11614512], 12 Jun 19; Garrett Reim, ‘Insitu sells 34 ScanEagle drones to Southeast Asian countries’, Flight Global, [https://www.flightglobal.com/civil-uavs/insitu-sells-34-scaneagle-drones-to-southeast-asian-countries/132961.article], 03 Jun 19
The US has also sanctioned the export of Northrop Grumman’s HALE Global Hawk to Japan and South Korea. Although it is unlikely that Japan will have operational Global Hawks before the late 2020s, South Korea received the first two of four airframes in late 2019.\(^{54}\) In both cases, the reason given was to monitor North Korean military (and nuclear) preparations, but the export has undoubtedly rattled Beijing.\(^{57}\) However, the deals are in doubt after the US said it would retire its fleet of Global Hawks, leaving Japan and South Korea with higher maintenance costs. Moreover, a Global Hawk in use by the US was shot down by Iran in June 2019, raising questions about the vulnerability of the aircraft.\(^{58}\)

Singapore has also shown interest in the Global Hawk, which was displayed at the Singapore Air Show in 2018 after flying through congested airspace to reach the event. Defence commentators said that this ability was a “notable” and “important consideration” for the region. For Singapore, situated on a busy sea lane, wide ranging surveillance is critical for its sense of security.\(^{59}\)

However, it is not only US firms that are supporting advances in the use of drones in the region. IAI’s Heron MK II was also on display at the 2020 Singapore Air Show, “optimised” for maritime surveillance as a way of marketing to East Asian nations.\(^{60}\) This was the first international display of the Heron MK II and IAI hopes the Singapore armed forces will opt for this model for their next generation requirements.\(^{61}\) Heron 1 is in service with the Royal Singapore Air Force (RSAF) and in late 2019, images appeared online (but were swiftly deleted), of an RSAF Heron 1 fitted with an extra belly pod, housing a maritime surveillance radar. This was interpreted as a clear sign of the RSAF’s plans to extend maritime surveillance.\(^{62}\)

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The future presence of armed drones

The acquisitions and local development outlined above have all been for unarmed drone systems, but this is changing and several states in the South East Asian region are well on their way to operating armed drones. Indonesia has turned to Chinese manufacturer CASC’s Chai Hong (Rainbow) series of drones to test an armed MALE UAV that would act as a stopgap before its domestically produced armed MALE drone, the Elang Hitam (Black Eagle) is ready for service. The first prototype of the Elang Hitam was revealed in December 2019, and the manufacturer, PTDI, say they hope to gain a feasibility certification from the Indonesian Ministry of Defence in 2021 and full military certification, including weapons, in 2024.63 There is no concrete date for the Elang Hitam’s introduction into service but President Widodo has requested that the date be brought forward to 2022.64 Whether this is a realistic possibility remains to be seen. Nevertheless, the design and manufacture of an indigenous armed MALE drone in the region (other than by Chinese firms) represents a new chapter in East Asian military development.

As well as the development of the Elang Hitam, Thai firm RV Connex has displayed its Sky Scout tactical drone fitted with missiles and say they are undertaking a programme to turn it into an armed drone.65 The unarmed variant of the Sky Scout is currently in use by the Royal Thai Air Force and the Navy intends to purchase the armed variant.66

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Drones Around the South and East China Seas — Current and Future Developments

This section gives a summary of the larger and notable drones in operation, or soon to be in operation, around the South and East China Seas. It is not intended to represent a full inventory of all drone types in the region. We are indebted to Dan Gettinger and his excellent resource The Drone Databook which we highly recommend.

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<tr>
<th>Drone Type</th>
<th>Specifications</th>
<th>Notable Deployments</th>
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<tbody>
<tr>
<td>ASN-209 (ASN Technology Corporation, China)</td>
<td>MALE drone, 4.3m long with a wingspan of 7.5m. It has an operating range of 200km, ceiling of 5,000m and endurance of 10hrs.</td>
<td>In service with PLAN and has been launched from air bases near the East China Sea.</td>
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<tr>
<td>BZK-005 Chang Ying/Giant Eagle (Beihang University and Harbin (AVIC), China)</td>
<td>Class II MALE surveillance drone, with an endurance of 40hrs, ceiling of 8,000m and maximum range of 2,400km.</td>
<td>Deployed by the PLAN in both the East and South China Seas. Conducted the controversial flights in Senkaku/Diaoyu airspace in 2013.</td>
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<tr>
<td>S-100 (Schiebel, Austria)</td>
<td>Class II VTOL drone with a 3m length and 3.4m wingspan. It has a range of 200km and an endurance of 10hrs and speed of 2040km/h.</td>
<td>Used by PLAN frigates in both the East and South China Seas.</td>
</tr>
<tr>
<td>Soar Eagle/WZ-7 (GAIG, China)</td>
<td>Class III HALE drone with a range of 3,780n miles and an altitude of 18,000m.</td>
<td>Seven air frames have been deployed to three different air bases close to China’s borders with Russia and Tibet. However, it was spotted tailing a US Navy vessel through the Taiwan Strait in July 2019.</td>
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68 McCaslin, Red Drones Over Disputed Seas, p. 9; Dan Gettinger, Drone Databook, p. 12
70 Dan Gettinger, Drone Databook, p. 14; Bussert, ‘Chinese Navy Employs UAV Assets’
71 ‘Camcopter S-100’, CNAS, <http://drones.cnas.org/drones/>, last accessed 14 Sep 20
72 McCaslin, Red Drones Over Disputed Seas, p. 7
### Indonesia

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<tr>
<td><strong>Aerostar</strong>&lt;br&gt;(Aeronautics, Israel)</td>
<td>Class II tactical MALE drone using satellite communications (satcoms) with a wingspan of 7.5m.  Endurance of 12hrs and a range of 200km with a max speed of 203km/hr. 74</td>
<td>Deployed by the Air Force in 2017 to monitor border with Malaysia. 75</td>
</tr>
<tr>
<td><strong>CH-4B/ Rainbow</strong>&lt;br&gt;(CASC, China)</td>
<td>Class III armed drone with a wingspan of 18m and capacity for anti-tank guided missiles and precision guided bombs. 76 It can use both Line of Sight communication (LoS) and satcoms.  It can fly at a height of 5km and at 210km/hr and has a 210km combat radius. 77</td>
<td>Demonstrations flights in late 2019 for naval (TNI-AL) use. No further information on deployment but planned to act as a bridge until Elang Hitam (below) is ready. 78</td>
</tr>
<tr>
<td><strong>Elang Hitam/Black Eagle</strong>&lt;br&gt;(PTDI, Indonesia)</td>
<td>This will be a Class III MALE armed drone, 8.65m long with a wingspan of 16m.  It will have an endurance of 6.6km, 250km line of sight range and speed of 235km/hr.  Unclear what weapons it will carry but it has two underwing hardpoints.</td>
<td>Currently under development at PTDI’s facilities in Bandung, West Java, for the Indonesian Air Force. It will be configured for ISR, territorial monitoring, targeting, counterterrorism, anti-piracy, anti-smuggling and resource protection. To be certified in 2024. 79</td>
</tr>
<tr>
<td><strong>Scan Eagle 2</strong>&lt;br&gt;(Boeing Insitu, USA)</td>
<td>Class I drone, with a range of 1,500km and 28hr endurance. It cruises at a speed of 90km/hr and has a service ceiling of 4.8km. It is designed for ISR missions and has voice, video and data communications relay. 80</td>
<td>The Navy will receive six air frames under the US deal. 81</td>
</tr>
<tr>
<td><strong>Wulung</strong>&lt;br&gt;(PTDI, Indonesia)</td>
<td>Class II surveillance drone which provides real time footage to ground control stations.  It has a range of 73km and an endurance of 4hrs. 82</td>
<td>As deployed by the Air Force to monitor border with Malaysia, since 2018. 83</td>
</tr>
</tbody>
</table>

### Japan

<table>
<thead>
<tr>
<th>Drone Type</th>
<th>Operator and Base(s)</th>
<th>Notable Deployment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FFOS/FFRS</strong>&lt;br&gt;(Fuji Heavy Industries, Japan)</td>
<td>Class II, unmanned helicopter.</td>
<td>In use with the Ground Self Defence Force since 2004. 84</td>
</tr>
<tr>
<td><strong>Global Hawk</strong>&lt;br&gt;(Northrop Grumman, USA)</td>
<td>Class III HALE drone with a length of 14.5m and wingspan of 40m.  Endurance of 32hrs, with a range of 22,780km, at an altitude of 18,288m and a speed of 629km/h. 85</td>
<td>Was to be introduced in 2020 but Japanese media have reported that the plan may be scrapped. 86</td>
</tr>
</tbody>
</table>

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75 Gettiner, Drone Databook, p. 26
77 Indonesia, Jane’s Unmanned Aerial Vehicles and Targets (Jane’s Information Group, 2016-17), p. 21
79 Gordon Arthur, ‘Indonesia rolls out indigenous MALE UAV’
83 Gettiner, Drone Databook, p. 26
84 Gettiner, Drone Databook, p. 28; Apthorp, ‘Automatic for the People’, p. 21
86 Ji, ‘Japan may scrap plan to buy U.S. Global Hawk drones’
### Malaysia

<table>
<thead>
<tr>
<th>Drone Type</th>
<th>Specifications</th>
<th>Notable Deployment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aludra MK-1 &amp; 2</strong>&lt;br&gt;(CTRM, Malaysia)</td>
<td>Class II drone with a length of 4.5m and wingspan of 6m.&lt;br&gt;A range of 100km and an endurance of 3hrs.</td>
<td>Used in 2013 by the Malaysian Air Force against Kiram insurgents and continues to be stationed in Borneo close to Philippines.87</td>
</tr>
<tr>
<td><strong>Campcopter S-100</strong>&lt;br&gt;(Schiebel, Austria)</td>
<td>Class II drone with a 3m length and rotor 3.4m wingspan.&lt;br&gt;It has a range of 200km and an endurance of 10hrs and speed of 240km/hr.</td>
<td>Deployed since 2016 for the Intelligence Division of the army.90</td>
</tr>
<tr>
<td><strong>Fulmar</strong>&lt;br&gt;(Thales Espana, Spain)</td>
<td>Class I drone with a 3m wingspan, 800km range and 12hr endurance.</td>
<td>These drones were deployed as part of an upgrade of the Coast Guard’s capacity (Malaysian Maritime Enforcement Agency). Six New Generation Patrol Craft were launched at the beginning in 2017, all equipped with a number of small drones including Fulmar.91</td>
</tr>
<tr>
<td><strong>Scan Eagle 2</strong>&lt;br&gt;(Boeing Insitu, USA)</td>
<td>See above.</td>
<td>In use to enforce Covid-19 Movement Control Order, but all destined for Maritime Security Initiative with the Royal Malaysian Navy.92</td>
</tr>
</tbody>
</table>

Malaysia has also expressed interest in Class III armed MALE drones – possibly the Anka, Wing Loong, CH-5 or Predator – but as yet there are no specific proposals to any manufacturers.93

### Philippines

<table>
<thead>
<tr>
<th>Drone Type</th>
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</tr>
</thead>
<tbody>
<tr>
<td><strong>Hermes 900</strong>&lt;br&gt;(Elbit, Israel)</td>
<td>Class III drone with a length of 9m and wingspan of 15m.&lt;br&gt;It has an endurance of 36hrs, a speed of 222km/hr and can reach a height of 9,100m.</td>
<td>All nine received but will not be operational with the Air Force until 2021.95</td>
</tr>
<tr>
<td><strong>Hermes 450</strong>&lt;br&gt;(Elbit, Israel)</td>
<td>Class II tactical drone with a length of 6.1m and wingspan of 10.5m.&lt;br&gt;An endurance of 17hrs, a speed of 130km/h and a range of 300km.</td>
<td>Delivery begun in 2019 but will not be operational until 2021.97</td>
</tr>
<tr>
<td><strong>Scan Eagle 2</strong>&lt;br&gt;(Boeing Insitu, USA)</td>
<td>As above.</td>
<td>To be stationed with the Air Force on Palawan, the closet Philippine island to the Spratly Islands. Defence sources said the Scan Eagle 2 will be used to monitor Chinese presence in South China Sea.98</td>
</tr>
</tbody>
</table>

87 ‘Aludra MK1’, Proliferated Drones, Centre for a New American Security (CNAS), <http://drones.cnas.org/drones/>, last accessed 14 Sep 20
88 Gettinger, Drone Databook, p. 31
89 ‘Campcopter S-100’, CNAS, <http://drones.cnas.org/drones/>, last accessed 14 Sep 20
90 Gettinger, Drone Databook, p. 31
94 Hermes 900, Proliferated Drones, CNAS, <http://drones.cnas.org/drones/>, last accessed 14 Sep 20
97 Gordon Arthur, ‘Philippines pursues new aircraft’; Max Montero, status update on Twitter, <https://twitter.com/MonteroMax/status/1169375422460522496>, 04 Sep 19
### Singapore

<table>
<thead>
<tr>
<th>Drone Type</th>
<th>Specifications</th>
<th>Notable Deployment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hermes 450 (Elbit, Israel)</td>
<td>Class III drone with a length of 8.5m and wingspan of 16.6m. It has a 45hr endurance with a 250km range and speed of 207km.</td>
<td>In service with the Air Force since 2015. Replaced Searcher 2.</td>
</tr>
<tr>
<td>Heron I (IAI, Israel)</td>
<td>Class III drone with a length of 8.5m and wingspan of 16.6m. It has a 45hr endurance with a 250km range and speed of 207km.</td>
<td>In service with the Air Force since 2017. Replaced Searcher 2.</td>
</tr>
<tr>
<td>Scan Eagle I (Boeing Insitu, USA)</td>
<td>As above.</td>
<td>Deployed with the Navy since 2012.</td>
</tr>
</tbody>
</table>

### South Korea

<table>
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<tr>
<th>Drone Type</th>
<th>Specifications</th>
<th>Notable Deployments</th>
</tr>
</thead>
<tbody>
<tr>
<td>Campcopter S-100 (Schiebel, Austria)</td>
<td>Class III drone under development. Intended to fly at an altitude of 10-12km, able to survey up to 100km of territory.</td>
<td>Deployed in 2019 for maritime patrols by the Ministry of National Defence to monitor North Korean activity.</td>
</tr>
<tr>
<td>Global Hawk (Northrop Grumman, USA)</td>
<td>Class II drone, 5m long with a 6.5m wingspan. Max speed of 185km/hr, 6hr endurance and a range of 80km.</td>
<td>First airframe delivered Dec 2019 to the Air Force, Air Intelligence Unit.</td>
</tr>
<tr>
<td>KUS-FS (KAL-ASD, South Korea)</td>
<td>Class II drone with an 8.6m wingspan. It has an endurance of 18hrs, a range of 250km. It can climb to 7000m and travel at a speed of 204km/hr.</td>
<td>Under development, intended for Korean Army Ground Operations Command. The package includes ten10 air frames and associated ground control systems. Its range will make it capable of recording footage beyond the demilitarised zone between North and South Korea.</td>
</tr>
<tr>
<td>RQ-101 Night Intruder/ Falcon and RQ-102 (KAI, South Korea)</td>
<td>Deployed with the Army’s Intelligence Battalion.</td>
<td>In use since 2005 and largely used to monitor North Korea activity. From 2019 to be used in maritime patrols.</td>
</tr>
</tbody>
</table>

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99 Gettinger, Drone Databook, p. 40
100 ‘Heron/Machatz 1 Unmanned Aerial Vehicle (UAV), Airforce Technology’, <https://www.airforce-technology.com/projects/heron-uav/>, last accessed 14 Sep 20
101 Gettinger, Drone DataBook, p. 40
102 Gettinger, Drone Databook, pp. 45
103 Gettinger, Drone Databook, p. 43
107 Gettinger, Drone Databook, pp. 45
109 Gettinger, Drone Databook, pp. 45
Taiwan

<table>
<thead>
<tr>
<th>Drone Type</th>
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<th>Notable Deployment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chung Shyang-2/Albatross (NCSIST, Taiwan)</td>
<td>Class II drone with a length of 5.3m and an 8.6m wingspan. It has 12hr endurance, range of 180km and a 4000m ceiling.</td>
<td>Operational since 2019 with Navy, Maritime Tactical Reconnaissance Squadron, monitoring coastal activity in China.</td>
</tr>
<tr>
<td>Teng Yun/Cloud Rider (NCSIST, Taiwan)</td>
<td>Class III MALE drone, 1,000km range, 24hr endurance, 2,620m ceiling.</td>
<td>Prototype displayed at TADTE, 2019, which bears similarities to Predator. An armed variant of a similar model was also displayed in 2017.</td>
</tr>
</tbody>
</table>

Thailand

<table>
<thead>
<tr>
<th>Drone Type</th>
<th>Specifications</th>
<th>Notable Deployment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Aerostar (Aeronautics, Israel)</td>
<td>As above.</td>
<td>In service with the Air Force since 2011.</td>
</tr>
<tr>
<td>Dominator (Aeronautics, Israel)</td>
<td>Class III MALE drone with an 8.6m length and 13.5m wingspan. Endurance of 20hrs and a top speed of 277km/hr. It's LOS range is 300km.</td>
<td>In service with the Army.</td>
</tr>
<tr>
<td>Hermes 450 (Elbit, Israel)</td>
<td>As above.</td>
<td>In service with the army since 2018, no information on deployment.</td>
</tr>
<tr>
<td>Searcher MK-II (IAI, Israel)</td>
<td>Class II drone, 5.2m long with an 8.5m wingspan. It has a speed of 125m/hr and an 18hr endurance.</td>
<td>In service with the army since 2001.</td>
</tr>
<tr>
<td>Sky Scout (RV Connex, Thailand)</td>
<td>Class I drone with a wingspan of 6.2m. It has an 80km range, 6hr endurance and 3,048m service ceiling.</td>
<td>The RTAF said it used drones and fighters jets to combat illegal fishing in July 2018. A new armed variant, the U-1 has been displayed at the Singapore Air Show. The Royal Thai Navy intends to purchase this armed drone.</td>
</tr>
</tbody>
</table>
### Vietnam

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<thead>
<tr>
<th>Drone Type</th>
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<th>Notable Deployment</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Heron 1</strong></td>
<td>As above.</td>
<td>Deal signed in 2018 for three air frames and ground control station. Not yet delivered.</td>
</tr>
<tr>
<td>IAI, Israel</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>HS-6L</strong></td>
<td>Class III HALE drone under development, but no news since 2015.</td>
<td>Speculation that it would be used to monitor Chinese activity in the South China Sea.</td>
</tr>
<tr>
<td>AST, Vietnam</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Scan Eagle 2</strong></td>
<td>As above.</td>
<td>Six aircraft to be introduced in 2022. Possibly to be deployed by Vietnamese Coast Guard or Air Force Naval Brigade.</td>
</tr>
<tr>
<td>Boeing Insitu, USA</td>
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In a region where the risks of conflict escalation are very real, the growing presence of drones gives cause for concern. While some argue that drones are no different from other aircraft, the (often exaggerated) surveillance and targeting powers of drones, coupled with the perception that their use is less politically risky than the use of piloted systems, makes them attractive for militaries to deploy. Deploying more weapons systems in areas of heightened tension is inherently dangerous and destabilising. This is particularly so in an area, such as the South China Sea, where offshore assets - such as islets - and the right of passage, are contested and where there are a lack of effective regional forums in which to discuss norms and inter-state relations.

As new weapons systems are introduced and states invest in militarisation, this problem is only set to increase. However, it is not just regional mistrust over territorial and marine resources that is contributing to tension. The continued deterioration in relations between China and the US means that smaller states are forced to choose a side, or at least be very careful in relations with both. Both the US and China are pushing the increased presence of drones in the region, and with no international or regional agreements on the acceptable use of drones, proliferation is a threat to peace and security. An increased use of more persistent, longer range systems could lead to more seemingly confrontational situations that draw stronger responses. Washington’s recent move to sell the latest variant of the Reaper armed drone to Taiwan will only intensify this pressure given Beijing’s stance on Taiwan, and may have unintended consequences for regional stability.
## LIST OF ACRONYMS

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Full Form</th>
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</thead>
<tbody>
<tr>
<td>ADIZ</td>
<td>Air Defence Identification Zone</td>
</tr>
<tr>
<td>ASEAN</td>
<td>Association of South East Asian Nations</td>
</tr>
<tr>
<td>BRI</td>
<td>Belt and Road Initiative</td>
</tr>
<tr>
<td>EEZs</td>
<td>Economic Exclusion Zone</td>
</tr>
<tr>
<td>FOIP</td>
<td>Free and Open Indo-Pacific</td>
</tr>
<tr>
<td>HALE</td>
<td>High Altitude Long Endurance drone</td>
</tr>
<tr>
<td>MALE</td>
<td>Medium Altitude Long Endurance drone</td>
</tr>
<tr>
<td>MNR</td>
<td>Chinese Ministry of Natural resources</td>
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<tr>
<td>MPA</td>
<td>Maritime Patrol Aircraft</td>
</tr>
<tr>
<td>MTCR</td>
<td>Missile Technology Control Regime</td>
</tr>
<tr>
<td>PLAN</td>
<td>People’s Liberation Army Navy (Chinese)</td>
</tr>
<tr>
<td>RSAF</td>
<td>Royal Singapore Air Force</td>
</tr>
<tr>
<td>UAVs</td>
<td>Unmanned Aerial Vehicle</td>
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<tr>
<td>UNCLOS</td>
<td>United National Convention of the Laws of the Sea</td>
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