

DRONE DATABOOK UPDATE: MARCH 2020

DAN GETTINGER

Since the publication of “The Drone Databook” in September 2019 we have continued to track developments in global military drone proliferation. We now estimate that there are at least 102 countries with active military drone programs, up from 95 in the “Databook.” Another six countries are believed to have inactive or pending drone programs. This update contains more than 100 additions, modifications, and corrections to the inventory, personnel, operations, infrastructure, research and development, and export sections of nearly 50 countries.

SUMMARY	Databook	Post Update
1. Countries with active military drone programs	95	102
2. Countries with inactive or pending drone programs	6	6
3. Countries with active _____ drones		
Class I (Light)	85	90
Class II (Medium)	44	45
Class III (Heavy)	31	35
4. Bases and test sites	236	247
5. Units	269	280
6. System types (active only)	171	181

Vist dronecenter.bard.edu/databook for the original “Drone Databook.”



INVENTORY

BAHAMAS

Model	Make	Origin	Class	Intro	Qty	Operator	Notes
	Swift Engineering	USA	I		55		

Mark Huber, "Swift Awarded \$17 Million Bahamas UAS Contract," *Aviation International Online*, 9 January 2020, <https://www.ainonline.com/aviation-news/general-aviation/2020-01-09/swift-awarded-17-million-bahamas-uas-contract>.

BRAZIL

Model	Make	Origin	Class	Intro	Qty	Operator	Notes
ScanEagle	Insitu	USA	I	2020	6	Navy	

Guilherme Wiltgen, "Marinha do Brasil seleciona o ScanEagle no programa ARP-E," *Defesa Aérea & Naval*, 14 December 2019, <https://www.defesaareanaval.com.br/aviacao/marinha-do-brasil-seleciona-o-scaneagle-no-programa-arp-e>.

CYPRUS

Model	Make	Origin	Class	Intro	Qty	Operator	Notes
Aerostar	Aeronautics	Israel	II	2019	4	Air Force	

"Cyprus buys Israel drones to monitor waters amid Turkey natural gas tensions," *Agence France-Presse*, 7 October 2019, <https://www.timesofisrael.com/cyprus-buys-israel-drones-to-monitor-waters-amid-turkey-natural-gas-tensions/>.



An Aeronautics Aerostar. Credit: Giles Thomas / Flickr

FRANCE

Model	Make	Origin	Class	Intro	Qty	Operator	Notes
UX11	Delair	France	I	2019		Army	Trial system

Delair, “Delair provides Ministry of Armies in UAVs Delair UX11,” news release, 14 October 2019, <https://www.suasnews.com/2019/10/delair-provides-ministry-of-armies-in-uavs-delair-ux11/>.

- *(Update)* France has armed its fleet of MQ-9 Reapers. The French Air Force Reapers are initially equipped with GBU-12 guided bombs. The Reapers will also be equipped with AGM-114 Hellfire guided missiles by the end of 2020 and with GBU-49 guided bombs in 2021.

Ministry of Defense, “Réussite des tirs d’expérimentation des drones armés,” news release, 21 December 2019, <https://www.defense.gouv.fr/actualites/la-vie-du-ministere/reussite-des-tirs-d-experimentation-des-drones-armes>.

GHANA

Model	Make	Origin	Class	Intro	Qty	Operator	Notes
Believer	MakeFly-Easy	China	I			Army	

GhanaWebTV, “Ghana@63: Ghana Armed Forces, other security agencies show off their vehicles,” YouTube, 7 March 2020, https://www.youtube.com/watch?v=C6RbY-CKN_8.



A MakeFlyEasy Believer displayed at a Ghanaian military parade in March 2020. Credit: GhanaWebTV / YouTube

GUYANA

Model	Make	Origin	Class	Intro	Qty	Operator	Notes
Perimeter 4	SkyFront	USA	I	2019	5	Army	

“Army buys prototype drones from start-up company,” *Kaieteur News*, 2 December 2019, <https://www.kaieteurnews.com/2019/12/02/army-buys-prototype-drones-from-start-up-company/>.

Skyfront Perimeter 4

Endurance	Op. Range	Speed	MTOW	Payload	Width	Length
1-5 hrs	177 km	57 km/h	15 kg	4 kg	1.9 m	2 m

Source: Skyfront

INDONESIA

Model	Make	Origin	Class	Intro	Qty	Operator	Notes
CH-4	CASC	China	III	2019	2	Air Force	

Ridzwan Rahmat, "Indonesia showcases CH-4 UAVs at military parade," *Jane's Defence Weekly*, 7 October 2019, <https://www.janes.com/article/91729/indonesia-showcases-ch-4-uavs-at-military-parade>.

LIBYA (Government of National Accord)

Model	Make	Origin	Class	Intro	Qty	Operator	Notes
Bayraktar TB2	Baykar	Turkey	III	2019	12	Air Force	

*Note: According to a December 2019 U.N. panel of experts report on Libya, the Bayraktar TB2s are operated by GNA Air Force personnel. The report notes that at least 12 Bayraktar TB2s were delivered to Libya, several of which have been downed by anti-aircraft fire.

United Nations, *Letter dated 29 November 2019 from the Panel of Experts on Libya established pursuant to resolution 1973 (2011) addressed to the President of the Security Council*, S/2019/914 (9 December 2019), available at <https://www.securitycouncilreport.org/un-documents/libya/>.

MALAYSIA

- (*Update*) Malaysia has taken delivery of its first Insitu ScanEagle 2 drones, which were acquired through the U.S. Maritime Security Initiative program.

Marhalim bin Abas, "Malaysia receives first batch of donated UAVs from US," *Jane's Defence Weekly*, 26 March 2020, <https://www.janes.com/article/95148/malaysia-receives-first-batch-of-donated-scaneagle-uavs-from-us>.

MOROCCO

Model	Make	Origin	Class	Intro	Qty	Operator	Notes
Heron-1/ Harfang	IAI, EADS	Israel, France	III	2019	3	Air Force	

Arie Egozi, "Morocco to acquire surplus French Harfangs," *FlightGlobal*, 20 January 2014, <https://www.flightglobal.com/morocco-to-ac>

quire-surplus-french-harfangs/112215.article.

Anna Ahronheim, “Did Morocco finally get their Israeli drones?” *The Jerusalem Post*, 3 February 2020, <https://www.jpost.com/Israel-News/Did-Morocco-finally-get-their-Israeli-drones-616230>.



A Harfang at Bagram Air Field in Afghanistan. France sold its three Harfangs, a variant of the IAI Heron 1, to Morocco. Credit: Wikimedia

MYANMAR

Model	Make	Origin	Class	Intro	Qty	Operator	Notes
CamCopter S-100	Schiebel	Austria	II			Navy	Status unclear*
MTD	My Fly Dream	China	I			Navy	

*Note: The aircraft was displayed in the Navy’s 71st anniversary parade in December 2018. In August 2019, a United Nations expert called for an investigation into Schiebel for violating an arms embargo.

“UN Expert Calls for EU Investigation Into Austrian Firm that Sold Drones to Myanmar,” Myanmar Now, 10 August 2019, <https://myanmar-now.org/en/news/un-expert-calls-for-eu-investigation-into-austrian-firm-that-sold-drones-to-myanmar>.

SG Mah, “(၇၁)စ်မြောက် တပုမတော့(ရေဒါစုတုလညာနေ) အထိမ်းအမှတ် စုရေယာဉ်များ တပုတော့ဝင်္ဂါဒုးအခမ်းအနား,” YouTube, 24 December 2018, <https://www.youtube.com/watch?v=l8tqZ6rD8PA>.

Christoph Zotter, “Schiebel-Drohnen für Myanmar: “Das sollte untersucht werden,” profil, 5 August 2019, <https://www.profil.at/ausland/myanmar-schiebel-eu-embargo-10889771>.



The MFD MTW (left) and Schiebel CamCopter S-100 displayed at the Navy’s 71st anniversary parade in December 2018. Credit: SG MAH / YouTube

NIGER

Model	Make	Origin	Class	Intro	Qty	Operator	Notes
DT26M	Delair	France	I	2019	3	National Guard	

Delair, “Delair long range surveillance drones help the French Ministry of Foreign Affairs to better address counter terrorism in Niger,” 23 December 2019, <https://delair.aero/success-stories/delair-long-range-surveillance-drones-help-the-french-ministry-of-foreign-affairs-to-better-address-counter-terrorism-in-niger/>.

Delair DT26M

Endurance	Op. Range	Speed	MTOW	Wingspan	Length
2 hrs	50 km	57 km/h	15 kg	3.3 m	1.6 m

Source: Delair

PAKISTAN

Model	Make	Origin	Class	Intro	Qty	Operator	Notes
LUNA NG	EMT Penz-berg	Germany	I	2020		Navy	

Bilal Khan, “Pakistan Navy Officially Inducts ATR-72 MPA and LUNA NG UAV, *Quwa*, 5 January 2020, <https://quwa.org/2020/01/05/pakistan-navy-officially-inducts-atr-72-mpa-and-luna-ng-uav/>.



An EMT LUNA NG (foreground) is inducted into the Pakistan Navy in a ceremony in January 2020. Credit: Pakistan Navy.

PHILIPPINES

- *(Correction)* The Philippine Air Force took its delivery of two Elbit Systems Hermes 450s in 2019, not in 2018 as initially reported. The Philippine Air Force also took delivery of a Class III fixed-wing Elbit Hermes 900. The Hermes 900 became operational in 2020.

Marhalim bin Abas, “Hermes 900 MALE UAV enters service with the Philippines Air Force,” *Jane’s Defence Weekly*, 21 January 2020, <https://www.janes.com/article/93815/hermes-900-male-uav-enters-service-with-philippine-air-force>.

POLAND

- (Update) The Polish Territorial Defence Forces announced that it has taken delivery of nearly 12 Class I WB Electronics FlyEye systems consisting of 48 aircraft. The Territorial Defence Forces is the largest user of FlyEye systems in the Polish military. The Ministry of Defence placed an order for an initial 3 FlyEye systems in December 2018 for the Territorial forces and exercised an option for an additional 9 systems in July 2019.

“Prawie 50 dronów FlyEye u terytorialsów,” *Defence24*, 2 December 2019, <https://www.defence24.pl/prawie-50-dronow-flyeye-u-terytorial-sow>.

RUSSIA

Model	Make	Origin	Class	Intro	Qty	Operator	Notes
Forpost-R	IAI, Ural Civil Aviation Plant	Israel, Russia	II	2020*	10	Army, Air Force	Searcher Mk II variant

*Note: The aircraft are expected to be delivered later this year. A follow-on deal for another 18 aircraft could be completed by the end of 2020. Ural conducted flight trials of the Forpost-R in mid-2019 at the Nizhny Tagil UAV test site.

Иван Сафронов and Алексей Никольский, “Завод УЗГА получил заказы на военные беспилотники на сумму более 30 млрд рублей,” *Vedomosti*, 5 February 2020, <https://www.vedomosti.ru/politics/articles/2020/02/05/822344-voennie-bespilotniki>.

SOUTH KOREA

- (Update) South Korea has taken delivery of the first of four Class III Northrop Grumman RQ-4 Global Hawk Block 30 surveillance drones.

“S. Korea brings in first Global Hawk unmanned aircraft,” *Yonhap News Agency*, 23 December 2019, <https://en.yna.co.kr/view/AEN20191223000551325>.

SPAIN

Model	Make	Origin	Class	Intro	Qty	Operator	Notes
Mantis EQF	Indra	Spain	I	2019		Army	Trial system

Ejército de Tierra, “La Brigada ‘Extremadura’ recibe el nuevo RPAS para unidades pesadas,” news release, 22 November 2019, http://www.ejercito.mde.es/noticias/2019/11/7742_rpas_extremadura.html.

- (Update) The Spanish Air Force took delivery of its first MQ-9 Reaper in December 2019.

Juanjo Fernández, “El Predator ‘vuela’ de EEUU a España: así es el nuevo dron revolucionario del Ejército,” *El Confidencial*, 30 December 2019, https://www.elconfidencial.com/tecnologia/2019-12-30/dron-ejercito-aire-espana-tecnologia-militar-predator_2390872/.

Indra Mantis

Endurance	Op. Range	Speed	MTOW	Wingspan	Length
1.5 hrs	25 km	50-100 km/h	6.3 kg	2.1 m	1.48 m

Source: Indra

SWITZERLAND

- (*Update*) The Swiss Air Force took delivery of the first of six Class III fixed-wing Elbit Hermes 900s. As of this writing the aircraft remains grounded due to delays in civilian airspace certification. According to reports in local media, it may not be operational until the second half of 2020. The drones will be used for border surveillance and emergency response.

Larissa Rhyn, “Neue Augen für die Armee: Wo steht der Kauf der Militärdrohnen, und welche Probleme gibt es?,” *Neue Zürcher Zeitung*, 9 January 2020, <https://www.nzz.ch/schweiz/drohnen-fuer-die-armee-die-probleme-bei-der-beschaffung-ld.1532704>.

THAILAND

Model	Make	Origin	Class	Intro	Qty	Operator	Notes
U-1	RV Connex	Thailand	II	2019	14	Air Force	
CamCopter S-100	Schiebel	Austria	II	2019	2	Navy	
Orbiter 3	Aeronautics	Israel	I	2019		Navy	

Jon Grevatt, “D&S 2019: Connex Builds Thai Profile,” *Jane’s Defence Weekly*, 22 November 2019, <https://www.janes.com/article/92778/d-s-2019-rv-connex-builds-thai-profile>.

“Navy to get new drones next year,” *Bangkok Post*, 6 November 2019, <https://www.bangkokpost.com/thailand/general/1788004/navy-to-get-new-drones-next-year>.

“Royal Thai Navy Orbiter 3 UAV has been Operational” *Asian Defence News* (blog), 2 December 2019, <https://asian-defence-news.blogspot.com/2019/12/royal-thai-navy-orbiter-3-uav-has-been.html>.



Royal Thai Navy officials inspect an Orbiter 3 in an undated photo published to social media in February 2020. Credit: RTN Research and Development Office / Facebook

TUNISIA

Model	Make	Origin	Class	Intro	Qty	Operator	Notes
Puma 3 AE*	AeroVironment	USA	I		16 (8)		
Anka-S*	TAI	Turkey	III		6		

*Note: Contract reported, expected delivery date uncertain.

“Contracts For Dec. 17, 2019,” U.S. Department of Defense, accessed 4 February 2020, <https://www.defense.gov/Newsroom/Contracts/Contract/Article/2042486/>.

AeroVironment, “AeroVironment Receives \$8.5 Million Puma™ 3 AE Foreign Military Sales Contract Award for U.S. Central Command Ally,” news release, 10 February 2020, <https://www.businesswire.com/news/home/20200210005862/en/>.

Burak Ege Bekdil, “Turkey’s TAI sells six Anka-S drones to Tunisia,” *Defense News*, 16 March 2020, <https://www.defensenews.com/unmanned/2020/03/16/turkeys-tai-sells-six-anka-s-drones-to-tunisia/>.

“Turkey’s TAI is sole contender for armed drones contract,” *Africa Intelligence*, 19 December 2019, <https://www.africaintelligence.com/mce/business-circles/2019/12/19/turkey-s-tai-is-sole-contender-for-armed-drones-contract,108386977-eve>.

TURKEY

Model	Make	Origin	Class	Intro	Qty	Operator	Notes
Kargu-2	STM	Turkey	I	2019	356		Loitering munition
Songar	Asisguard	Turkey	I	2019			

“Kamikaze İHA Kargu-2 güvenlik güçlerine teslim edildi,” *TRT Haber*, 30 January 2020, <https://www.trthaber.com/haber/bilim-teknoloji/kamikaze-ih-kargu-2-guvenlik-guclerine-teslim-edildi-457614.html>.

“Silahlı mini İHA Songar envantere girdi,” *Kokpit.aero*, 2 January 2020, <http://www.kokpit.aero/songar-teslimatlari-basladi>.

- (*Update*) The Gendarmerie General Command, Turkey’s national military police agency, reportedly took delivery of six Turkish Class III fixed-wing Baykar-Makina Bayraktar-TB2s, bringing the total number of TB2s in the Turkish military inventory to an estimated 92 or 94. Another six Bayraktar TB2s were reportedly delivered to the General Directorate of Security, Turkey’s national civilian law enforcement agency.

“Jandarmaya 6 SİHA teslim edildi,” *Sabah*, 28 September 2019, <https://www.sabah.com.tr/gundem/2019/09/28/jandarmaya-6-siha-teslim-edildi>.

“EGM’ye 6 adet ‘Bayraktar TB2’ teslim edildi,” *CNN Turk*, 5 December 2019, <https://www.cnnturk.com/turkiye/egmye-6-adet-bayraktar-tb2-teslim-edildi>.

- (*Update*) The Gendarmerie General Command took delivery of four Class III fixed-wing Turkish Aerospace Industries Anka-S, a satellite-controlled variant of the TAI Anka. Meanwhile, the Turkish Navy took delivery of three Anka-Bs. There are an estimated 22 Ankas in service with various branches of the Turkish military.

Ismail Demir (@IsmailDemirSSB), “Uydudan kontrol kabiliyeti sayesinde uzun menzilde hareket icra edebilen 4 adet Anka-S SİHA’yı Jandarma Genel Komutanlığı’na teslim ettik,” Twitter, 12 September 2019, https://twitter.com/IsmailDemirSSB/status/1172220498853453826?ref_src=twsrc%5Etfw.

“Deniz Kuvvetleri’ne 3 adet ANKA SİHA teslim edildi,” *Kokpit.aero*, 13 October 2019, <http://www.kokpit.aero/deniz-kuvvetleri-anka-teslimati>.

Asisguard Songar

Op. Range	MTOW	Width	Height	Armament Ammunition
10 km	45 kg	145 cm	70 cm	200x5.56 caliber 45mm NATO rounds

Source: Asisguard

UKRAINE

- *(Update)* In October 2019, Turkey reportedly delivered several Roketsan MAM-L and MAM-C guided munitions for Ukraine’s Class III Baykar Bayraktar TB2s. In March 2020, the Ukrainian Air Force conducted its first operational flights of the Bayraktar TB2, one year after the first deliveries of the Turkish-made aircraft.

Ministry of Defense, “Ударні БПЛА Bayraktar TB2 піднялися в небо,” news release, 15 March 2020, <http://www.mil.gov.ua/news/2020/03/15/udarni-bpla-bayraktar-tb2-pidnyalisya-v-nebo/>.

“Поставка турецьких тренувальних бомб у жовтні 2019-го,” Ukrainian Military Pages (blog), 19 March 2020, <https://www.ukrmilitary.com/2020/03/roketan.html>.

UNITED ARAB EMIRATES

Model	Make	Origin	Class	Intro	Qty	Operator	Notes
Seeker 400	Denel Dynamics	South Africa	II				

“Defence deals worth Dh624m signed at UMEX and SimTEX 2020,” *Gulf News*, 24 February 2020, <https://gulfnews.com/business/defence-deals-worth-dh624m-signed-at-umex-and-simtex-2020-1.69928950>.

- *(Update)* The U.A.E. Armed Forces awarded Abu Dhabi Autonomous Systems Investments Company a \$63 million contract for Schiebel CamCopter S-100 rotary-wing drones.

“Defence deals worth Dh624m signed at UMEX and SimTEX 2020,” *Gulf News*, 24 February 2020, <https://gulfnews.com/business/defence-deals-worth-dh624m-signed-at-umex-and-simtex-2020-1.69928950>.



INVENTORY: ACTIVE ACQUISITIONS

BAHRAIN

- According to a U.S. government report, the U.S. helped train members of the Royal Bahrain Air Force to operate and maintain the Class I fixed-wing Insitu ScanEagle. As of this writing it is not clear if Bahrain has purchased the ScanEagle.

United States, Department of State, *Foreign Military Training Report Fiscal Years 2018 and 2019 Joint Report to Congress Volume II*, 2-C52504A, Washington, D.C., https://www.state.gov/wp-content/uploads/2019/12/FMT_Volume-I_FY2018_2019.pdf.

BOTSWANA

- Botswana reportedly took delivery of three Israeli Class I fixed-wing Aeronautics Orbiter 2 systems in 2017 or 2018 for use by the special forces. As of this writing, however, the status of these systems is not clear. According to reports in local media and in the French journal Intelligence Online, the acquisition is part of an ongoing dispute in Botswana involving the reappropriation of funds.

Oarabile Mosikare, “Inside the P241m ‘ironclad’ Israeli spy deal,” *Mmegi Online*, 24 August 2018, <http://www.mmegi.com/index.php?aid=77257&dir=2018/august/24>.

Tebogo Kgalemag, “Magosi receives Kgosi’s firearms, UAVs,” *Weekend Post*, 3 September 2018, <https://www.weekendpost.co.bw/wp-news-details.php?id=5350>.

“Drone firm Dignia takes Botswana’s DISS to court,” *Intelligence Online*, 11 December 2019, <https://www.intelligenceonline.com/corporate-intelligence/2019/12/11/drone-firm-dignia-takes-botswana-s-diss-to-court,108385835-art>.

BULGARIA

- The Bulgarian Ministry of Defense released a \$14 million tender for 12 Class I “mini” drones and two Class I “small” drones. Deliveries are expected to begin in late 2020.

“Министерство на отбраната ще купи 14 дрона за 25 млн. лв,” *Economic.bg*, 7 January 2020, <https://www.economic.bg/bg/news/12/ministerstvo-na-otbranata-shte-kupi-14-drona-za-25-mln-lv.html>.

FRANCE

- In March 2020, the French Ministry of Defense published a tender for Class I reconnaissance drones for the Army. Each system would comprise two aircraft, each of which should weigh no more than 2.5 kilograms. The MoD plans to acquire 200 systems by the end of 2020, though as many as 2,000 aircraft may eventually be acquired under this program.

“L’Armée de Terre souhaite se doter de 2 000 systèmes de drones,” *Apps & Drones*, 9 March 2020, <https://apps-drones.com/article/larmee-de-terre-souhaite-se-doter-de-2-000-systmes-de-drones-774>.

GERMANY

- The German government cancelled a \$2.5 billion plan to purchase Northrop Grumman MQ-4C Triton surveillance drones. The defense ministry was reportedly unconvinced that the Tritons would meet European safety requirements to fly in civilian airspace by 2025 and was concerned about the rising cost of the platform. Germany will instead purchase manned Bombardier Global 6000 aircraft.

Sebastian Sprenger, “Germany walks away from \$2.5 billion purchase of US Navy’s Triton spy drones,” *DefenseNews*, 28 January 2020, <https://www.defensenews.com/breaking-news/2020/01/28/germany-walks-away-from-25-billion-purchase-of-us-navys-triton-spy-drones/>.

GREECE

- Speaking to parliament in December 2019, Greek Minister of Defense Nikos Panagiotopoulos said that Greece would acquire three strike-capable drones from the U.S. (presumably the MQ-9 Reaper) and two surveillance drones from Israel. Following an official visit to Israel in January, local Greek media reported that Panagiotopoulos was close to finalizing a deal to lease two IAI Heron-1s from Israel for two years.

Anthee Carassava, “Greece buys armed drones to challenge Turkey in eastern Mediterranean,” *The Times*, 18 December 2019, <https://www.thetimes.co.uk/article/greece-buys-armed-drones-to-challenge-turkey-in-eastern-mediterranean-wj0qg0d5w>.

Yannis Nikitas, “UAV Heron: Μίσθωση δύο συστημάτων για 3 χρόνια,” *DefenceReview.gr*, 17 January 2020, <https://defencereview.gr/uav-heron-misthosi-dyo-systimatou-gia-3-chronia/>.

MAURITANIA

- According to a report in the French journal *Africa Intelligence*, the Mauritanian Islamic Air Force is engaged in negotiations to purchase either tactical UAVs or the Class III CASC CH-4 from China.

“Beijing seeks to unleash its military drones in west Africa,” *Africa Intelligence*, 8 January 2020, <https://www.africaintelligence.com/lce/diplomatic-affairs/2020/01/08/beijing-seeks-to-unleash-its-military-drones-in-west-africa,108388549-art>.

MEXICO

- The Mexican Air Force is reportedly in the process of reintroducing a Class III Elbit Systems Hermes 900. According to local media reports, the Air Force awarded Elbit a contract in early 2020 to reactivate and upgrade a Hermes 900. As of this writing, it is not clear when exactly the Air Force first introduced the Hermes 900 as the aircraft also appears to be operated by the Centro Nacional de Inteligencia, Mexico’s civilian intelligence agency.

Jorge Alejandro Medellín, “La Fuerza Aerea Mexicana busca reactivar uno de sus Hermes 900,” *Defensa*, 27 February 2020, <https://www.defensa.com/mexico/fuerza-aerea-mexicana-busca-reactivar-uno-hermes-900>.

NIGERIA

- According to a report in the French journal *Africa Intelligence*, the Nigerian Army is engaged in negotiations to purchase the Chinese Class II rotary-wing AVIC AV500.

“Beijing seeks to unleash its military drones in west Africa,” *Africa Intelligence*, 8 January 2020, <https://www.africaintelligence.com/lce/diplomatic-affairs/2020/01/08/beijing-seeks-to-unleash-its-military-drones-in-west-africa,108388549-art>.

SERBIA

- According to a local media report, Serbia will acquire six Chinese Class II fixed-wing CASC CH-92As. The CH-92A is optionally armed with FT-8C and FT-8D air-to-surface missiles. China will also reportedly help Serbia arm its indigenously-produced Pegasus (Pegaz) UAV.

“Srbija kupuje najmoderniju letelicu: CH-92A unaprediće naš ‘pegaz,’” *b92*, 28 November 2019, https://www.b92.net/biz/vesti/svet.php?yyyy=2019&mm=11&dd=28&nav_id=1623792.

SPAIN

- The Spanish Navy is reportedly looking into acquiring a fourth U.S. Class I Insitu ScanEagle system for the 11th Aerial Squadron. According to an article in the Navy’s periodical *Revista General De Marina*, the Navy is also looking into acquiring a number of micro and mini Class I systems for shipboard ISR and by special forces units.

Miguel Hernandez Suarez-Llanos, “Implantación de Vehículos No Tripulados En El Ámbito Naval,” *Revista General De Marina*, (2020): 261.

SWITZERLAND

- Switzerland is reported to have awarded contracts for at least two aircraft for the Mini UAV Program. In January 2019, Swiss media outlets reported that the Army had settled on the Aeronautics Orbiter 2B to fill its requirement for a short-range ISR platform. In February 2020, French drone maker Parrot announced that it had been awarded a contract to participate in the program. As of this writing, the status of these contracts is unclear.

Christian Mensch, “Schweizer Armee kauft Drohnen von umstrittener israelischer Firma,” *Aargauer Zeitung*, 11 January 2019, <https://www.aargauerzeitung.ch/schweiz/schweizer-armee-kauft-drohnen-von-umstrittener-israelischer-firma-133949713>.

Markus Häfliger, “Der Armee fehlen Drohnen für den Grenzschutz,” *Tages Anzeiger*, 16 September 2019, <https://www.tagesanzeiger.ch/schweiz/standard/bald-fliegen-keine-drohnen-mehr/story/16968436>.

Parrot, “Parrot chosen by Swiss Army for the supply of Micro Drones,” news release, 17 February 2020, <https://blog.parrot.com/2020/02/17/parrot-chosen-by-the-swiss-army-for-the-supply-of-micro-drones/>.



INVENTORY: INACTIVE SYSTEMS

SWITZERLAND

- The Swiss Air Force deactivated its fleet of RUAG Rangers in November 2019 after nearly 20 years of service.

Markus Häfliger, “Der Armee fehlen Drohnen für den Grenzschutz,” *Tages Anzeiger*, 16 September 2019, <https://www.tagesanzeiger.ch/schweiz/standard/bald-fliegen-keine-drohnen-mehr/story/16968436>.

Armed Drones Tracker

Column A of this table identifies the countries that, as of this writing, are believed to operate armed drones. Column B identifies the countries that have either a) operated armed drones in the past and do not appear to do so currently or b) are in the process of acquiring armed drones or c) are developing armed drones. Column C identifies the countries that operate drones that are known to be capable of carrying out strikes, but do not appear to be armed by this country. For the purposes of this chart, “armed drones” do not include loitering munitions, small expendable drones that explode on impact with a target.

Country	A: Operational	B: Past / Future / R&D	C: Strike-Capable ISR
Algeria			
Australia			
Azerbaijan			
Belarus			
Belgium			
Brazil			
Canada			
Chile			
China			
Colombia			
Czechia			
Ecuador			
Egypt			
France			
Germany			
Greece			
India			
Indonesia			
Iran			
Iraq			
Israel			
Italy			
Kazakhstan			
KSA			
Libya (GNA)			
Malaysia			
Mexico			
Morocco			

Country	A: Operational	B: Past / Future / R&D	C: Strike-Capable ISR
Myanmar			
Netherlands			
Nigeria			
Pakistan			
Philippines			
Qatar			
Russia			
Serbia			
Singapore			
South Africa			
Spain			
Switzerland			
Thailand			
Tunisia			
Turkey			
UAE			
UK			
Ukraine			
USA			
Zambia			
Total	10	20	18



PERSONNEL

BRAZIL

- The Brazilian Navy stood up the Executive Group of Remotely Piloted Aircraft (*Grupo Executivo de Aeronaves Remotamente Pilotadas*, or GEARP) on 31 May 2019 to study the acquisition and integration of drones into the Brazilian Navy. It is the predecessor to the planned 1st Remotely Piloted Aircraft Patrol and Maritime Surveillance Squadron (*1º Esquadrão de Aeronaves Remotamente Pilotadas de Patrulha e Vigilância Marítima*).

Guilherme Wiltgen, “Marinha do Brasil seleciona o ScanEagle no programa ARP-E,” *Defesa Aérea & Naval*, 14 December 2019, <https://www.defesaaereanaval.com.br/aviacao/marinha-do-brasil-seleciona-o-scanegale-no-programa-arp-e>.

Marinha do Brasil, “Comandante da Força Aeronaval visita as instalações do Grupo Executivo de Aeronaves Remotamente Pilotadas,” news release, https://www.marinha.mil.br/comforaernav/com_vist_gearp.



(Left) Members of the Brazil's newly created Executive Group of Remotely Piloted Aircraft. Credit: Marinha do Brasil
(Right) Members of Croatia's Center for Unmanned Systems at a ceremony on 15 November 2019 inaugurating the unit's new headquarters at Pula Airfield. Credit: Croatian Ministry of Defense / M. Cobanovic

CROATIA

- (*Update*) The Croatian Army unit tasked with UAV operations is the Center for Unmanned Aircraft Systems, Intelligence Operations Headquarters, General Staff of the Armed Forces of Croatia (*Središta za besposadne zrakoplovne sustave, Središnjica za obavještajno djelovanje, Glavni stožer Oružanih snaga Republike Hrvatske*, or SBZS SOD GS OS RH). It was activated in December 2018 and equipped with the Orbiter-3B in 2019. In November 2019 the SBZS moved to a new headquarters at Pula Airfield.

Jorge Alejandro Medellín, “La Fuerza Aerea Mexicana busca reactivar uno de sus Hermes 900,” *Defensa*, 27 February 2020, <https://www.defensa.com/mexico/fuerza-aerea-mexicana-busca-reactivar-uno-hermes-900>.

CYPRUS

- The Cypriot National Guard Aviation Command stood up the 470th Unmanned Aerial Vehicle Squadron (470 Μοίρα Μη Επανδρωμένων Αεροσκαφών) to operate the Aeronautics Aerostar.

“Σε Τακτική υπηρεσία Τέθιχαν τα Κυπριακά ΜΕΑ ... Της «470 ΜΜΕΑ» της Εθνικής Φρουράς,” *Veteranos* (blog), 8 February 2020, <https://veteranos.gr/se-taktiki-ypiresia-tethikan-ta-kypriaka-mea-tis-470-mmea-tis-ethnikis-frouras/>.
47th Regiment RA (@47RegtRA), “The team in RAF Akrotiri recently had the pleasure of hosting members of the Cyprus Air Force,” Twitter, 28 February 2020, <https://twitter.com/47RegtRA/status/1233285805013192704>.

CZECHIA

- In January 2020, the Czech Army stood up the 533rd Unmanned Systems Battalion, 53rd Regiment of Reconnaissance and Electronic Warfare, Land Forces Command (*533. praporu bezpilotních systémů, 53. pluk průzkumu a elektronického boje, Pozemní síly Armády České republiky*). Headquartered at Prostějov, it is equipped with the RQ-11 Raven and ScanEagle, as well as various Class I drones made by Chinese firm DJI. It is expected to reach initial operational capability in October 2020 and full capability in 2025. The 533rd replaces the Unmanned Reconnaissance Company, 102nd Reconnaissance Battalion in the “Databook.”

Tom McEnchroe, “Czech Army Sets up Special Unmanned Systems Battalion, Combat and Reconnaissance Drones to Follow Soon,” *Radio Prague International*, 17 January 2020, <https://www.radio.cz/en/section/curraffrs/czech-army-sets-up-special-unmanned-systems-battalion-combat-and-reconnaissance-drones-to-follow-soon>.

JAPAN

- The 8th Intelligence Corps, 8th Division, Western Army, Japan Ground Self Defense Force (第8情報隊, 第8師団, 西部方面隊, 陸上自衛隊) is headquartered at Kita Kumamoto Garrison and equipped with the Insitu ScanEagle. The JGSDF stood up the 8th Intelligence Corps on 26 March 2019.

“第8情報隊の紹介 - 防衛省・自衛隊,” Ministry of Defense, accessed 14 February 2020, <https://www.mod.go.jp/gsdf/wae/8d/bu-tai/8mi.html>.

- The JGSDF stood up the 6th Intelligence Corps, 6th Division, North Eastern Army (第6情報隊, 第6師団, 東北方面隊) in March 2020. It is headquartered at Kamimachi Garrison and equipped with the Insitu ScanEagle.

JGSDF 6th Division, “第6師団改編行事その2,” news release, 26 March 2020, https://www.mod.go.jp/gsdf/neae/6d/activity/r2.3.26_6mi_sinnpenn.html

- The Japan Air Self Defense Force is planning to activate the Temporary Unmanned Aerial Vehicle Squadron (臨時滞空型無人機航空隊) in Fiscal Year 2020 to prepare for the introduction of the RQ-4B Global Hawk. The unit is expected to be based at Misawa Air Base and will comprise 70 personnel. Japan’s three RQ-4B Global Hawks are expected to be introduced in 2021.

“防衛省、グローバルホーク臨時部隊20年度末新編へ,” *Wing*, 28 January 2020, <http://www.jwing.net/news/20958>.



Japan Ground Self-Defense Force personnel launch a JUXS-S1 hybrid UAV during a joint training event with U.S. Marines in Japan in December 2019. Credit: Lance Cpl. Dangelo Yanez / USMC

MALAYSIA

- (Update) The Royal Malaysian Navy (TLDM) unit equipped with the ScanEagle is the 601 Squadron (*Skuadron 601*). In March 2020, the East Fleet appointed the first commanding officer of the 601 Squadron in a ceremony at TLDM Base Kota Kinabalu. The 601 Squadron replaces the UAS Unit in the “Databook.”

Jorge Alejandro Medellín, “La Fuerza Aerea Mexicana busca reactivar uno de sus Hermes 900,” *Defensa*, 27 February 2020, <https://www.defensa.com/mexico/fuerza-aerea-mexicana-busca-reactivar-uno-hermes-900>.

PHILIPPINES

- (Update) The Air Force unit equipped with the Hermes 450 and Hermes 900 is reported to be the 3031st Unmanned Aerial Reconnaissance Squadron, which is subordinated to the 300th Air Security and Intelligence Wing.

“The Elbit Hermes 900 MALE UAS of the Philippine Air Force,” PHDefenseResource (blog), 31 March 2019, <https://www.phdefenseresource.com/2019/11/the-elbit-hermes-900-male-uas-of.html>.

POLAND

- Members of the 1st Podlaska Territorial Defence Brigade, Territorial Defence Force (*1 Podlaskiej Brygady Obrony Terytorialnej, Wojska Obrony Terytorialnej*) have begun training to operate the Class I WB Electronics FlyEye. The 1st Podlaska Brigade is at least the third Territorial Defence Force brigade to conduct UAV training. Operators from the 2nd Lublin Territorial Defence Brigade and the 3rd Podkarpacka Territorial Defence Brigade began training with the FlyEye in mid-2019. Instruction is provided by WB Electronics and the Polish Air Force Academy.

“Samodzielne loty operatorów dronów z 1 Podlaskiej BOT,” *Defence24*, 8 February 2020, <https://www.defence24.pl/samodzielne-loty-operatorow-dronow-z-1-podlaskiej-bot>.

Polska-zbrojna.pl, “Pierwsi żołnierze WOT-u ukończyli kurs dla operatorów bezzalogowych statków powietrznych FlyEye,” *Aviation24*, 24 September 2019, <https://aviation24.pl/component/k2/item/6658-pierwsi-zolnierze-wot-u-ukonczyli-kurs-dla-operatorow-bezzalogowych-statkow-powietrznych-flyeye>.

RUSSIA

- The UAV Company, 42nd Motorized Rifle Brigade, 58 Combined Arms Army, Southern Military District (Рота БПЛА, 42-й мотострелковой дивизии, 58-й общевойсковой армии, Южного военного округа) is headquartered in Khankala, Chechen Republic and equipped with various Class I fixed-wing unmanned aircraft.

Ministry of Defense, “Подразделения БПЛА ЮВО в Чечне применяют современный боевой опыт ведения воздушной разведки в рамках тактико-специальных занятий,” news release, 23 January 2020, https://function.mil.ru/news_page/country/more.htm?id=12272069@egNews.

- The UAV Company, 74th Separate Guards Motorized Rifle Brigade, 41st Combined Arms Army, Central Military District (Рота БПЛА. 74-я отдельная гвардейская мотострелковая бригада, 41-я общевойсковая армия, Центральный военный округ) is headquartered in Yurga, Kemerovo Oblast and equipped with the Eleron-3SV and various other Class I fixed-wing unmanned aircraft.

“По разведанным беспилотной авиации...,” *Red Star*, 22 January 2020, <http://redstar.ru/po-razveddannym-besipilotnoj-aviatsii/>.

SOUTH KOREA

- (Correction) According to local media reports, the South Korean Air Force unit dedicated to operating the RQ-4 Global Hawk is the HUAV Reconnaissance Squadron (HUAV 정찰비행대대), not the Air Intelligence Unit (공군항공정보단) as initially reported. The Air Intelligence Unit will likely support RQ-4 operations by analyzing imagery.

“Air Force sets up Global Hawk reconnaissance squadron,” *Yonhap News Agency*, 31 January 2020, <http://www.koreaherald.com/view.php?ud=20200131000468>.

THAILAND

- The Royal Thai Air Force appears to have equipped the 206th Squadron (ราชการสนนาม ๒๐๖), which is based at Watthana Nakhon Airport, with several RV Connex U1s. The Air Force intends to turn Watthana Nakhon Airport into a center for UAV training. The RTAF’s primary UAV unit is the 404th Squadron.

Royal Thai Air Force, “ตรวจรับเครื่องยนต์ของอากาศยานไร้คนขับ,” news release, 3 February 2020, <http://rtaf.mi.th/th/RTAFNews/Pages/A20200203-2.aspx>.

“Thailand’s First Armed Drone,” *Aviation Week*, 11 February 2020, <https://aviationweek.com/shownews/singapore-airshow/thailands-first-armed-drone>.

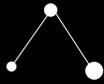
UNITED STATES

- The 42nd Attack Squadron, 432nd Wing has temporarily ceased operations. The Air Force reactivated the 42nd in 2006 as one of the first squadrons to operate the MQ-9 Reaper. Since then, the 42nd has conducted over 11,000 sorties, accumulating more than 180,000 combat flight hours.

Airman 1st Class William Rio Rosado, “Dormant, not deactivated: 42nd ATKS end of operations,” Creech Air Force Base, 11 February 2020, <https://www.creech.af.mil/News/Article-Display/Article/2081711/dormant-not-deactivated-42nd-atks-end-of-operations>.



Members of the 42nd Attack Squadron on 5 February 2020. Credit: William Rio Rosado / US Air Force



OPERATIONS

FRANCE

- (*Update*) Days after announcing that it had armed its MQ-9 Reapers, France carried out its first drone strike during a two-day battle in late December between French special forces and Islamist militants in central Mali. Since then, France has carried at least two more drone strikes in Mali.

“French army carries out first-ever drone strike during Mali op,” *Agence France-Presse*, 23 December 2019, <https://www.france24.com/en/20191223-french-army-carries-out-first-ever-drone-strike-during-mali-op>.

Ministry of Defense, “Operational update from January 3 to 9,” news release, 9 January 2020, <https://www.defense.gouv.fr/operations/points-de-situation/point-de-situation-des-operations-du-3-au-9-janvier>.

Ministry of Defense, “Barkhane : Opérations ponctuelles au Mali,” news release, 29 January 2020, <https://www.defense.gouv.fr/operations/barkhane/breves/barkhane-operations-ponctuelles-au-mali>.

ITALY

- (*Update*) Since 2016, Italian Army RQ-7 Shadow 200s have accumulated more than 3,000 flight hours in 780 flight missions in Afghanistan as part of NATO’s Resolute Support Mission. The Italian Shadows are deployed to Tactical Advise Assist Command - West in Herat Province.

Ministero della Difesa, “Missione in Afghanistan: 3000 ore di volo per lo Shadow 200,” news release, 9 October 2019, http://www.difesa.it/OperazioniMilitari/op_intern_corso/AfghanistanRS/notizie_teatro/Pagine/missione_in_afghanistan_3000_ore_volo_per_shadow_200.aspx.

SPAIN

- (*Correction*) Spain’s drone operations in Iraq did not end in 2018 as initially reported. The Navy’s 11th Aircraft Squadron deployed with the ScanEagle to Iraq between October 2017 and November 2019, accumulating more than one thousand flight hours in support of Operation Inherent Resolve. Army-operated Orbiter 3s replaced the 11th Aircraft Squadron’s ScanEagles in 2019. In March 2020, Spain ordered the withdrawal of all forces from Iraq in response to the Coronavirus outbreak.

Veronica Sanchez, “Los drones gaditanos de la Armada finalizan su misión en Irak,” *La Voz de Cádiz*, 9 December 2019, https://www.lavozdigital.es/cadiz/lvdi-drones-gaditanos-armada-finalizan-mision-irak-201912090931_noticia.html.

TURKEY

- In late February 2020, Turkey launched dozens of drone strikes in Syria in a bid to halt gains made by the Assad regime and to retaliate for the deaths of 33 Turkish soldiers. The strikes targeted armored vehicles, bases, chemical warfare depots, and air defense systems in Syria’s northwestern Idlib province. Turkey and Russia announced a ceasefire in Idlib province in early March.

Seclan Hacaoglu, “Turkey’s Killer Drone Swarm Poses Syria Air Challenge to Putin,” *Bloomberg*, 1 March 2020, <https://www.bloomberg.com/news/articles/2020-03-01/turkey-s-killer-drone-swarm-poses-syria-air-challenge-to-putin>.

Gul Tuysuz and Ivana Kottasova, “Turkey and Russia announce ceasefire in northwest Syria,” *CNN*, 5 March 2020, <https://www.cnn.com/2020/03/05/middleeast/russia-turkey-syria-ceasefire-intl/index.html>.

- Turkey has deployed Bayraktar TB2s to northern Cyprus amid growing tensions between Cyprus and Turkey over oil and gas rights in the island’s waters. The Bayraktar TB2s are based at Geçitkale Air Base in the self-declared Turkish Cypriot state. In the year prior, military Bayraktar TB2s provided surveillance for Turkish drilling vessels in the disputed zones.

“Turkey deploys surveillance drone in northern Cyprus,” Associated Press, 16 December 2019, <https://www.navytimes.com/news/your-navy/2019/12/16/turkey-deploys-surveillance-drone-in-northern-cyprus/>.

- The Turkish military deployed Bayraktar TB2 and Ankas in support of relief efforts in the wake of the 6.8 magnitude earthquake in Elâzığ. According to local media reports, the drones accumulated more than 200 flight hours over the course of the operation.

“Turkey deploys surveillance drone in northern Cyprus,” Associated Press, 16 December 2019, <https://www.navytimes.com/news/your-navy/2019/12/16/turkey-deploys-surveillance-drone-in-northern-cyprus/>.

UNITED STATES

- (*Update*) A U.S. drone strike in Iraq killed Major General Qasem Soleimani, a leading Iranian military figure who served as the head of the country’s Al Quds Force. In a statement, the U.S. military said that the strike was ordered by President Trump in response to reports that Soleimani was planning attacks on U.S. personnel in the region.

Louisa Loveluck, “Iran vows revenge after U.S. drone strike kills elite force commander,” Washington Post, 3 January 2020, https://www.washingtonpost.com/world/middle_east/iran-vows-revenge-after-us-drone-strike-kills-elite-force-commander/2020/01/03/345127d6-2df4-11ea-bffe-020c88b3f120_story.html.

Selection of Downed and Crashed Drone Incidents September 2019 - March 2020

Aircraft	Operator	Crash Location	Timeframe	Cause
Orbiter 2	Azerbaijan	Azerbaijan	Sept. 2019	Hostile Fire
Rustom 2	Manufacturer	India	Sept. 2019	Accident
Orlan 10	Russia / Assad Re-gime	Turkey	Sept. 2019	Hostile Fire
Orlan 10	LNA (presumed)	Libya	Sept. 2019	Unclear
Zephyr	Manufacturer	Australia	Oct. 2019	Accident
Orion	Manufacturer	Russia	Nov. 2019	Accident
MQ-1C Gray Eagle	U.S. Army	Libya	Nov. 2019	Hostile Fire
MQ-9 Reaper	Italian Air Force	Libya	Nov. 2019	Hostile Fire
Wing Loong 1	UAE	Yemen	Nov. 2019	Hostile Fire
RQ-4 BAMS-D	U.S. Navy	UAE	Nov. 2019	Accident
ScanEagle	Unclear	Yemen	Nov. 2019	Hostile Fire
Bayraktar TB2	Turkey / GNA	Libya	Dec. 2019	Hostile Fire

Karayel	KSA Contractor	Yemen	Jan. 2020	Hostile Fire
CH-92A	Unclear	Cambodia	Jan. 2020	Accident
Wing Loong 2	UAE / LNA	Libya	Jan. 2020	Hostile Fire
Shahed 129	Iran	Iran	Jan. 2020	Accident
Orlan 10	Unclear	Libya	Jan. 2020	Hostile Fire
Bayraktar TB2	Turkey / GNA	Libya	Jan. 2020	Hostile Fire
Anka	Turkish Air Force	Syria	Feb. 2020	Hostile Fire
MQ-1C Gray Eagle	U.S. Army	Niger	Feb. 2020	Accident
Orlan 10	Russia / Assad Re-gime	Syria	Mar. 2020	Hostile Fire
Ababil 3	Iran / Assad Regime	Syria	Mar. 2020	Hostile Fire
Bayraktar Mini	Turkey / GNA	Libya	Mar. 2020	Unclear



Orbiter 2 in Azerbaijan in September. Credit: NKR Ministry of Defense Press Service



Orlan 10 in Libya in September. Image via Oded Berkowitz/Twitter



Orion in Russia in November 2019. Image via Joseph H. Dempsey/Twitter



Wing Loong 1 in Yemen in December 2019. Image via الإعلام الحربي / YouTube



Karayel in Yemen in January 2020. Credit: Ansar Allah



Bayraktar TB2 in Libya in January 2020. Image via Liveuamap Middle East/Twitter



Ababil 3 in Syria in March 2020. Image via Cemal Acar/Twitter



Anka in Syria in February 2020. Image via Intel Air & Sea/Twitter



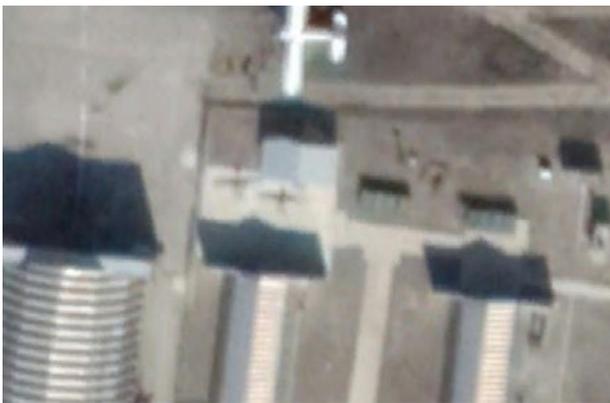
Bayraktar Mini in Libya in March 2020. Image via Oded Berkowitz/Twitter



INFRASTRUCTURE

AZERBAIJAN

- Yevlakh Airport, Azerbaijan (40°38'03"N 047°08'21"E) appears to be the site of an ongoing Aerostar deployment.
- (*Update*) Sangachaly Air Base, Azerbaijan (40°07'47"N 49°27'18"E) is a Hermes 900 site. It is not clear if Heron 1s continue to operate from here.



(Left) Two probable Aeronautics Aerostars at Yevlakh Airport, Azerbaijan in November 2019. Credit: Maxar Technologies
 (Right) An Elbit Systems Hermes 900 at Sangachaly Air Base, Azerbaijan in January 2020. Credit: Maxar Technologies

CHINA

- Suixi Air Base in China (21°23'45"N 110°12'00"E) was the site of a Soar Dragon deployment in November 2019. The deployment appears to have been temporary.
- (*Update*) Dehong Mangshi Airport in China (24°23'54"N 98°31'29"E) appears to be the site of an ongoing Wing Loong 2 deployment. At least two Wing Loong 2s were deployed to the airport in late 2019.
- (*Update*) Sanya Naval Air Base, China, (18°17'12"N 109°27'51"E) appears to be the site of a Wing Loong 1 deployment as of late 2019. Sanya is already host to the BZK-005.



(Left) A probable Wing Loong 1 at Sanya Naval Air Base in December 2019. Credit: Maxar Technologies
 (Right) Two Wing Loong 2s at Dehong Mashu Airport in December 2019. Credit: Maxar Technologies

EGYPT

- (*Update*) Uthman Air Base, Egypt (29°33'18"N 25°35'20"E) is the site of a Wing Loong 2 deployment. It is possible that these aircraft are operated by the United Arab Emirates.

Christopher Biggers, "Wing Loong II UAVs deployed to western Egyptian base," *Jane's Defence Weekly*, 27 February 2020, <https://www.janes.com/article/94550/wing-loong-ii-uavs-deployed-to-western-egyptian-base>.

INDIA

- Port Blair/Veer Savarkar International Airport, India (11°38'28"N 092°43'47"E) has been the site of intermittent Heron 1 deployments since at least 2016 and most recently in November 2019.



(Left) An IAI Heron at Port Blair Airport, India in November 2019. Credit: Maxar Technologies

(Right) A Bayraktar TB2 lifts off from Misrata Airport, Libya in December 2019. Credit: Maxar Technologies

LIBYA

- Misrata Airport, Libya (32°19'32"N 15°3'35"E) is the site of a Bayraktar TB2 deployment.
- Tripoli Mitiga International Airport, Libya (32°54'N 13°17'E) is the site of a Bayraktar TB2 deployment.

ImageSat Intl. (@ImageSatIntl), "#ISI #intelligence report confirms: #Tripoli's Mitiga international airport hosts GNA's #Turkish made #Bayraktar TB2 #UAS," Twitter, 11 February 2020, <https://twitter.com/imagesatintl/status/1227254600656392192?lang=en>.

MOROCCO

- Meknes-Bassatine Air Base, Morocco (33°52'32"N 05°30'57"W) is the site of a Heron 1 deployment.

RUSSIA

- (*Update*) Protasovo Airport, Russia (54°29'45"N 039°55'57"E) appears to be an active Orion test site.



(Left) A Kronshtadt Orion at Protasovo Airport, Russia in October 2019 . Credit: Maxar Technologies

(Right) An IAI/EADS Harfang (Heron 1) at Meknes-Bassatine Air Base, Morocco in October 2019. Credit: Maxar Technologies

TURKEY

- Geçitkale Air Base, Northern Cyprus (35°14'00"N 33°43'58"E) is the site of an ongoing Bayraktar TB2 deployment.
- Hatay Airport, Turkey (36°21'46"N 36°16'56"E) is the site of a Bayraktar TB2 deployment. Hatay Airport served as a base of operations for Turkey's February 2020 air campaign in Syria.
- Çorlu Air Base, Turkey (41°08'35"N 27°55'21"E) is an Akinci test site.
- Erzurum Air Base, Turkey (39°57'19"N 41°10'09"E) is the site of a planned Bayraktar TB2 deployment.

Muhammet Mutaf, "Teröristlerin korkulu rüyası İHA ve SİHA'lar Erzurum'dan havalanacak," *Anadolu Agency*, 12 March 2020, <https://www.aa.com.tr/tr/turkiye/teroristlerin-korkulu-ruyasi-iha-ve-sihalar-erzurumdan-havalanacak/1763155>.

UNITED KINGDOM

- (*Update*) Boscombe Down, United Kingdom (51°09'27"N 01°44'49"W) is an active Army Watchkeeper training site.
- RAF Akrotiri, Cyprus (34°35'26"N 32°59'16"E) is a temporary Army Watchkeeper training site.

UNITED STATES

- (*Update*) Andersen Air Force Base, USA (13°34'34"N 144°55'28"E) is the site of the first Navy MQ-4C Triton deployment.
- (*Update*) Ayn Al Asad Air Base, Iraq (33°47'44"N 42°27'01"E) is the site of an Air Force MQ-9 Reapers deployment.
- (*Update*) Air Base 201, Agadez, Niger (16°57'06"N 008°00'57"E) is the site of an Air Force MQ-9 Reaper and Army MQ-1C Gray Eagle deployment.
- Campia Turzii Air Base, Romania (46°30'12"N 023°53'07"E) is the site of a temporary Air Force MQ-9 Reaper deployment.

Note: All images in this section are sourced from Google Earth. Attribution information for third-party data providers is located in the photo caption.



DEVELOPMENT

AUSTRALIA

- (Update) Boeing Australia conducted a test with a pair of subscale jet aircraft to demonstrate semi-autonomous teaming capabilities as part of its Airpower Teaming System. The program is meant to develop advanced autonomous drones that can operate in tandem with manned fighter jets.

Joseph Trevithick, “Boeing Conducts Flight Test of Surrogate Drones For Australia’s Loyal Wingman Program,” *The Drive*, 19 November 2019, <https://www.thedrive.com/the-war-zone/31104/boeing-conducts-flight-test-of-surrogate-drones-for-australias-loyal-wingman-program>.

CHINA

- (Update) Chinese firm Tengoen completed the maiden flight of a three engine variant of its TW328/TB001 strike-capable, medium-altitude long-endurance drone. The TB001 was first unveiled in 2017 and initially featured a twin-engine design.

Gabriel Dominguez, “Three-engined variant of China’s Tengden TB001 UAV makes maiden flight,” *Jane’s Defence Weekly*, 21 January 2020, <https://www.janes.com/article/93811/three-engined-variant-of-china-s-tengden-tb001-uav-makes-maiden-flight>.

- The WZ-8 is a high-speed, high-altitude Class III fixed-wing UAV. It was unveiled at a military parade marking the 70th anniversary of the PRC. The WZ-8 is reportedly capable of being air-launched by a manned bomber.

Tyler Rogoway, “China’s High-Speed Drone is Rocket-Powered And All About Doing What Satellites Can’t,” *The Drive*, 1 October 2019, <https://www.thedrive.com/the-war-zone/30121/chinas-high-speed-recon-drone-is-rocket-powered-and-all-about-doing-what-satellites-cant>.



(Left) The three-engine variant of the Tengoen TW328/TB001 UAV in January 2020. Image via GlobalSecurity
(Right) A WZ-8 at the PRC’s 70th anniversary parade in September 2019. Image via CCTV/YouTube

GERMANY

- European airspace and defense firm Airbus unveiled the Low-Observable UAV Testbed (LOUT), a prototype stealth drone that it has been developing secretly with the German military for over a decade. The testbed, which is not intended for flight trials, weighs four tons and has a 12-meter width and length. It is designed to evaluate a range of technologies for avoiding detection by enemy air defenses.

David Donald, “Airbus Unveils LOUT Stealth Drone Testbed,” *Aviation International Online*, 5 November 2019, <https://www.ainonline.com/aviation-news/defense/2019-11-05/airbus-unveils-lout-stealth-drone-testbed>.

INDONESIA

- The Black Eagle (*Elang Hitam*) is a weapons capable Class III fixed-wing UAV developed by Indonesian Aerospace (PT Dirgantara Indonesia). Indonesian Aerospace plans to build two prototypes for flight tests, which are expected to begin in October 2020 and continue through 2021. The company is aiming to certify the system for military use by 2023. A mockup of the aircraft was unveiled in late December 2019 in a ceremony in Bandung.

Greg Waldron, “Indonesia rolls out indigenous MALE UAV,” *FlightGlobal*, 2 January 2020, <https://www.flightglobal.com/military-uavs/indonesia-rolls-out-indigenous-male-uav/135989.article>.

“Drone MALE Elang Hitam bakal uji terbang perdana Oktober 2020,” *Antara News*, 13 March 2020, <https://www.antaraneews.com/berita/1354618/drone-male-elang-hitam-bakal-uji-terbang-perdana-oktober-2020>.



A mockup of the PTDI Black Eagle at its unveiling in December 2019. Credit: Indonesian Aerospace

Specifications for the PTDI Black Eagle

Endurance	Op. Range	Payload	Wingspan	Length
30 hrs	250 km LOS	300 kg	16 m	8.65 m

Source: PTDI

ISRAEL

- The Heron Mk II is a Class III fixed-wing UAV developed by Israel Aerospace Industries. The Heron Mk II is based on the Heron 1; according to IAI, it has an enlarged forward fuselage, faster rate of climb, and slightly increased maximum take-off weight than its predecessor. It was unveiled at the 2020 Singapore Airshow.

Chen Chuanren, “IAI Introduces Heron Mk II for Complex Missions,” *Aviation International Online*, 31 January 2020, <https://www.ainonline.com/aviation-news/defense/2020-01-31/iai-introduces-heron-mk-ii-complex-missions>.

ITALY

- (Update) Leonardo conducted the first test flight of the Falco Xplorer, a developmental Class III fixed-wing drone at Trapani-Birgi Air Base in Sicily. The Xplorer was unveiled at the 2019 Paris Air Show.

Greg Waldron, “Indonesia rolls out indigenous MALE UAV,” *FlightGlobal*, 2 January 2020, <https://www.flightglobal.com/military-uavs/indonesia-rolls-out-indigenous-male-uav/135989.article>.

“Drone MALE Elang Hitam bakal uji terbang perdana Oktober 2020,” *Antara News*, 13 March 2020, <https://www.antaranews.com/berita/1354618/drone-male-elang-hitam-bakal-uji-terbang-perdana-oktober-2020>.

SINGAPORE

- Veloce is a family of a Class I hybrid vertical take-off and landing UAVs produced by ST Engineering, comprising the Veloce 15 and Veloce 60, which have a maximum take-off weight of 17 and 70 kilograms, respectively. As hybrid aircraft, the Veloce UAVs are capable of both vertical take-off and landing and horizontal flight. The systems were unveiled at the 2020 Singapore Airshow.

Kelvin Wong, “Singapore Airshow 2020: ST Engineering unveils Veloce family of fixed wing VTOL UAVs,” *Jane’s International Defence Review*, 13 February 2020, <https://www.janes.com/article/94301/singapore-airshow-2020-st-engineering-unveils-veloce-family-of-fixed-wing-vtol-uavs>.

ST Engineering Veloce 60

Endurance	Op. Range	Max Speed	MTOW	Wingspan
12-14 hrs	70 km	130 km/h	50-70 kg	5 m

Source: ST Engineering via Aviation International Online

SOUTH KOREA

- (Update) Korea Aerospace Industries completed the successful first flight of the Night Intruder-600 Vertical Take-Off and Landing, a helicopter drone designed for surveillance and cargo missions.

“Korea Aerospace Industries NI-600 VT unmanned helicopter completes first test flight,” *Defense Post*, 26 September 2019, <https://thedefensepost.com/2019/09/26/korea-ni-600-vt-unmanned-helicopter-test-flight/>.

SPAIN

- The Ministry of Defense launched three research and development projects involving Class I UAVs under the “Innovate RPAS” (RPAS Innovadores) program. One program involves the integration of lightweight air-to-surface munitions with Class I UAVs. This project is led by AERTEC Solutions, a Spanish drone firm that has developed a small fixed-wing UAV, the Tarsis 25, that can be equipped with a laser-guided missile.

Jose Maria Navarro, “Defensa estudia de nuevo armar sus UAVs,” *defensa.com*, 14 February 2020, <https://www.defensa.com/espana/defensa-estudia-nuevo-armar-uavs>.

TURKEY

- (Update) On 6 December 2019, Turkish defense company Baykar Makina completed the maiden flight of the Akinci, a large developmental strike drone. The test flight lasted 16 minutes and was undertaken at Çorlu airfield in northwest Turkey.

Jon Lake, "Turkey's New Raider Takes to the Air," *Aviation International Online*, 11 December 2019, <https://www.ainonline.com/aviation-news/defense/2019-12-11/turkeys-new-raider-takes-air>.



The Baykar Akinci displayed at the Teknofest 2019 expo in September 2019. Credit: Wikimedia

UNITED ARAB EMIRATES

- The Garmousha is a Class II rotary-wing UAV developed by Adasi, a subsidiary of the Emirati defense firm Egde. It was unveiled at the 2020 UMEX defense trade show. It is reported to have an endurance of six hours, a range of 150 kilometers, and payload capacity of 100 kilograms.

Kelsey Warner, "UAE's first locally-made drone unveiled at Umex," *The National*, 23 February 2020, <https://www.thenational.ae/uae/government/uae-s-first-locally-made-drone-unveiled-at-umex-1.983259>.

UNITED STATES

- (Update) The U.S. Department of Defense conducted the first flight of the Kratos X-61A Gremlins Air Vehicle at Dugway Proving Ground, Utah, in November 2019. The flight test was part of a Defense Advanced Research Projects Agency program to develop swarming drones that can be launched and recovered by a military transport aircraft.

Valerie Insinna, "US Defense Department launches Gremlins drone from a mothership for the first time," *Defense News*, 28 January 2020, <https://www.defensenews.com/industry/techwatch/2020/01/28/us-defense-department-launches-gremlins-drone-from-a-mothership-for-the-first-time/>.

- (Update) In October 2019 and January 2020, Kratos and the U.S. Air Force conducted flight tests of the XQ-58A Valkyrie demonstrator long-range, high subsonic UAV at Yuma Proving Grounds, Arizona. The experimental aircraft was damaged in the October test, but completed the January test without issue. The Valkyrie is the product of the Air Force's Low Cost Attritable Strike Demonstration program.

Brian W. Everstine, "Valkyrie 'Wingman' Drone Damaged After Third Test Flight," *Air Force Magazine*, 10 October 2019, <https://www.airforcemag.com/valkyrie-wingman-drone-damaged-after-third-test-flight/>.

Rachel S. Cohen, "Valkyrie Drone Completes Fourth Flight Test," *Air Force Magazine*, 24 January 2020, <https://www.airforcemag.com/valkyrie-drone-completes-fourth-flight-test>.

