



China Sets New Records for Aerial, Naval Drone Swarms

OE Watch Commentary: In mid-May, Chinese electronics and defense state-owned enterprise China Electronics Technology Group Corporation (CETC) held another demonstration of its fixed-wing drone technology. As reported by the accompanying excerpted article from *Xinhua*, the test successfully demonstrated the ability to launch, control, maneuver, and recover a swarm of 200 individual small Unmanned Aerial Vehicles (UAVs). CETC previously tested a swarm of 119 drones in June 2017. CETC also tested a pair of folding-wing UAVs that are able to vary their wingspan based on mission requirements. While the drones are small and have limited payload, CETC and other Chinese research institutes and companies are clearly investing a lot of effort into the technology.

Civilian companies, such as drone giant Ehang have used multi-rotor drones' hover capability to put on spectacular displays such as a 1374-drone light show over Xi'an in May. While the civilian use may seem harmless, the technology is viewed as having important military applications. Research labs under China's National University of Defense Technology have also carried out smaller-scale tests of drone swarms. Chinese strategists see aerial drones as a major disruptive technology that could give China an advantage against potential adversaries. However, aerial drones are not the only area seeing Chinese investment.

Naval strategists have long warned of the threat numerous small combatants have to large warships. Chinese companies have begun experiments with naval drone swarms. In June, Chinese company Yunzhou Tech [云州只能] posted a video of 56 naval drones carrying out complex maneuvers in China's southern coast as reported by the excerpted article from *Global Times*. The company's website advertises a host of applications for the system, from environmental surveying to firefighting. Additional demonstrations by the same company have shown variants armed with light machine guns.

As the computing power available for individual drones becomes more powerful, control methods are refined, sensors become smaller and manufacturing becomes cheaper, the size and effectiveness of these swarms can be expected to expand significantly. While these public tests currently have limited combat capability, their rapid increase in size suggests that initial real-world capabilities are perhaps just around the corner. **End OE Watch Commentary (Wood)**



Figure 3-12. UAS swarm attack role.
Source: CATP 3-01.8, *Techniques for Combined Arms for Air Defense*, July 2016. <https://fas.org/irp/doddir/army/atp3-01-8.pdf>, Distribution Unlimited.

Notable Chinese UAV Swarm Demonstrations		
Date	Institution/Company	Swarm Size
November 2016	Tsinghua University and Posong Technology	67 Fixed-wing UAVs
February 2017	Ehang	1000 Quad-copter UAVs
June 2017	China Electronics Technology Group Corporation (CETC)	119 Fixed-wing UAVs
December 2017	National University of Defense Technology	21+ Fixed-wing UAVs
December 2017	Ehang	1180 Quad-copter UAVs
May 2018	Ehang	1374 Quad-copter UAVs
May 2018	China Electronics Technology Group Corporation (CETC)	200 Fixed-wing UAVs

Notable Chinese UAV Swarm Demonstrations.
Source: Created by Peter Wood.



China's cyber policy appears to have three vectors —peace activist, espionage activist, and attack planner— that dominate China's cyber policy. Some are always hidden from view while others are demonstrated daily. Three Faces of the Cyber Dragon is divided into sections that coincide with these vectors.

<https://community.apan.org/wg/tradoc-g2/fms0/m/fms0-books/195610/download>

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Continued: China Sets New Records for Aerial, Naval Drone Swarms

“Using artificial intelligence technology, the company vowed to promote the ‘shark swarm’ to be used in daily duty and for real sea battles and to safeguard Chinese territorial waters all the time.”

Source: “200架无人机集群飞行：我国再次刷新固定翼无人机集群飞行纪录 (200-UAV Drone Swarm Takes Flight: China Again Sets New Record for Fixed-Wing Drone Swarm Flight),” *Xinhua*, 15 May 2018. http://www.xinhuanet.com/politics/2018-05/15/c_1122835745.htm

China Electronics Technology Group Corporation (CETC) today successfully launched a 200-UAV fixed wing drone swarm, setting a new record after its previous record of 119. CETC also successfully held China’s first successful low-altitude test of a pair of small-scale folding-wing UAVs.

It is understood that swarm Intelligence is universally regarded as a disruptive technology as the core of unmanned systems artificial intelligence human intelligence. Through aerial networks, autonomous control, group intelligence decision-making, Large-scale, low-cost multi-functional drone swarm can be applied to missions such as sensing and emergency communications.

Not including CETC’s achievements with UAV swarm tests, CETC has also revealed a new special action plan for next generation Artificial Intelligence. CETC Chairman Xiong Qunli [熊群力] explained that data intelligence, machine intelligence, swarm intelligence are the three major directions that will form the core of its research. A large learning center, an open source visual big database, and a swarm intelligence innovation platform will allow CETC to quickly adapt AI applications to address concrete real-world problems.

Source: “Unmanned ‘shark swarm’ to be used in sea battles, military patrols,” *Global Times*, 5 June 2018. <http://www.globaltimes.cn/content/1105736.shtml>

A Guangdong company has tested 56 unmanned boats and is working with the military to develop a “shark swarm” for sea battles and military patrols. The unmanned drone-like vessels were tested in formation and demonstrated their potential for military use in the sea near Zhuhai, Guangdong Province, according to a statement the company sent to the Global Times on Tuesday.

The boats reportedly avoided islands and reefs, crossed bridges and tunnels, turned and changed their formation into the shape of an aircraft carrier with the slogan “civil-military.”

South China-based manufacturer Yunzhou Tech, also known as Oceanalpha, is cooperating with the Chinese arms industry to put the “shark swarm” into the hands of the People’s Liberation Army (PLA), the statement said.

Using artificial intelligence technology, the company vowed to promote the “shark swarm” to be used in daily duty and for real sea battles and to safeguard Chinese territorial waters all the time, the statement said.



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