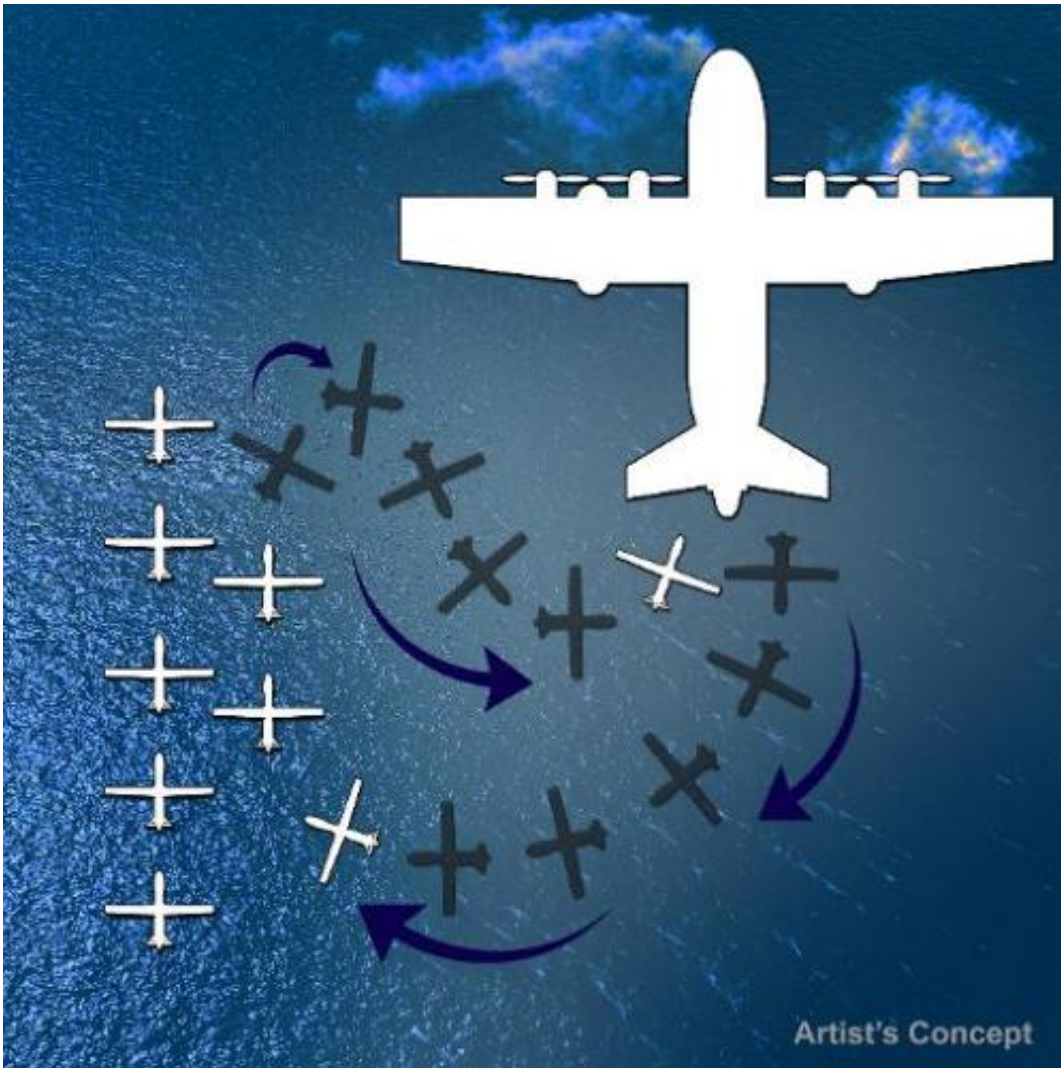


US military looks for the elusive mothership

November 18 2014, by Dan De Luce



A Defense Advanced Research Projects Agency artist's conception illustrates how a large cargo plane might be able to release drones that would spy on or attack an enemy and then return to the "mothership"

It's a Hollywood sci-fi fantasy that has long eluded the Pentagon: a flying "mothership" that launches smaller aircraft.

The Pentagon's research agency put out a request to industry this month to outline how a large cargo plane could release drones to spy on or attack an enemy and then return to the flying [aircraft carrier](#).

The concept conjures up fantastical images from "The Avengers" film and the "StarCraft" video game, with large, lumbering motherships sending out smaller craft—but there are no cloaking devices involved in this particular project.

At the moment, the Defense Advanced Research Projects Agency (DARPA) is not close to constructing any test planes and is merely exploring the possibility on paper, officials and experts said.

"This is the float-the-idea stage of the concept. It's not the build-me-a-prototype stage. We're not to that yet," said author Peter Singer, who has written extensively about robots and warfare.

In a conceptual drawing from DARPA, a cargo plane resembling a C-130 releases a squadron of drones that look similar to Predator or Reaper aircraft.

"We want to find ways to make smaller aircraft more effective, and one promising idea is enabling existing large aircraft, with minimal modification, to become 'aircraft carriers in the sky,'" Dan Patt, the manager for the DARPA program, said in a statement.

Airships with biplanes

It's not the first time the American military has sought to create a carrier in the sky.

"This idea goes back to the 1920s," said James Lewis, director of the Strategic Technologies Program at the Center for Strategic and International Studies.

"If you think back to dirigibles, they used to have small aircraft, a one-man fighter, that would hook up to them."

Constructed by the US Navy in the late 1920s, the rigid airships could carry a small squadron of Sparrowhawk biplanes inside, and the planes would then launch from the dirigible after being lowered by a trapeze device. The biplane would return by latching onto a hook on the belly of the mothership.

The US Navy built two of the airships but both of them went down in disastrous crashes in the 1930s, killing dozens of crew and spelling the end of the experiment.

In the 1960s, the CIA commissioned a pioneering drone manufactured in secret by Lockheed Martin, the D-21, which was designed to launch from another jet and later from a B-52 bomber. The unmanned D-21 carried a camera for spy missions over China and then was supposed to release the camera for retrieval while the plane would self-destruct.

In four missions, the plane either failed to self-destruct as planned or the camera module could not be retrieved, and the program was scrapped by 1971.

Underwater aircraft carrier?

The flying carrier could allow the use of drones in areas where the United States has no access to nearby airfields, but the technical challenge of recovering a robotic plane in mid-air remains a serious obstacle, Lewis said.

The exploration of a possible airborne carrier is part of a massive effort by the Pentagon to invest in cutting-edge robotic technology, as commanders are keenly aware that China, Russia, Iran and other countries are looking to build their own fleets of unmanned weapons.

The carrier fits into what researchers call the "marsupial" category of robots. At the recent Zhuhai arms show, China unveiled a prototype of an unmanned armored vehicle that carries two smaller robots inside, a tracked robot outfitted with a machine gun and a flying surveillance quadcopter.

But while the flying drone carrier may be a long way off, US military researchers are moving closer to an underwater carrier, with aircraft launched from a torpedo or missile tube, Singer said

"If you are looking at other places where you might see [aircraft](#) carriers, don't look up in the air, look under water," he said. "That's where there is some really interesting research work and strategic need."

Last year the US Naval Research Laboratory said it had successfully released a drone from a submerged submarine, with the robotic plane flying out of a Tomahawk missile tube and its wings unfolding origami style.

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Citation: US military looks for the elusive mothership (2014, November 18) retrieved 25 April 2024 from <https://phys.org/news/2014-11-military-elusive-mothership.html>

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