First drone landing on carrier forecasts the future of aerial warfare

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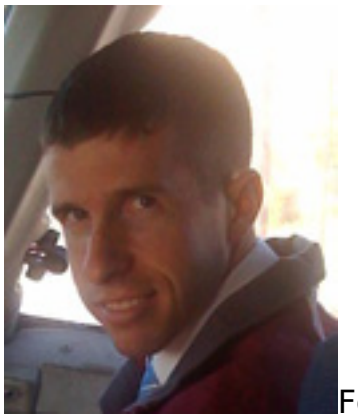 Forget fancy, 5th-generation manned stealth jets. The future of aerial warfare is unmanned, with fighter jockeys shelved in favor of cold, robotic precision. Look no further than the X-47B: Last month, the autonomous drone became the first unmanned jet to land aboard [1] a moving aircraft carrier.

And the Navy brass are giddy as schoolchildren (and nerdy tech journalists).

"It isn't very often you get a glimpse of the future. Today, those of us aboard USS George H.W. Bush got that chance as we witnessed the X-47B make its first ever arrested landing aboard an aircraft carrier," said Secretary of the Navy Ray Mabus. "The operational unmanned aircraft soon to be developed have the opportunity to radically change the way presence and combat power are delivered from our aircraft carriers."

Don’t get too excited – this doesn’t foretell the robot apocalypse, and manned aviation still sports a decisive advantage. The only known dogfight [2] between man and machine ended badly for the hapless MQ-1 Predator which picked a fight with a Mig-25 (and its human occupant).

But make no mistake – we’re witnessing the future of aerial warfare. While the stealth and performance capabilities of the latest 5th-gen manned fighters far outpace UAVs (and the X-47B, itself, will never go into production), the theoretical advantages enjoyed by a system that doesn’t suffer from biological restrictions – like an affinity for oxygen [3] – make drones the natural successor to manned aviation.

This demonstration is a significant step toward that end.

Back in May, ECN reported on a related milestone [4]. The X-47B – with a flight ceiling of 40,000 feet, nautical range of 2,100 miles, and subsonic capabilities –

launched [5] from the USS George H.W. Bush, becoming the first drone to launch from an aircraft carrier.

Last month, the experimental drone completed the cycle. During its arrested landing, the X-47B caught the 3 wire with the aircraft's tailhook, bringing it from approximately 145 knots to stop in less than 350 feet.

According to the Navy, the test marked “an historic event for naval aviation that Navy leaders believe will impact the way the Navy integrates manned and unmanned aircraft on the carrier flight deck in the future.”

It didn’t go off without a hitch, though.

The X-47B completed two arrested landings before it self-detected a navigation computer anomaly, causing the autonomous drone to divert itself to the Wallops Island Air Field in Virginia.

The Navy feels [6] this vindicates the X-47B’s autonomous capabilities.

“In this case, one of the three navigational sub-systems failed, according to post-flight data. “The other two [subsystems] realized that. It exercised its already pre-planned logic and identified that sub-system anomaly,” said Capt. Jaime Engdahl, Navy UCAS program manager.

This is a great start. After all, the DoD’s Unmanned Systems Integrated Roadmap FY

2011-2036 [7] strove to gradually reduce “the degree of human control and decision making required for the unmanned portion of the force structure.”

We’re still a ways off from fully-autonomous aerial vehicles that can get into a tussle with manned fighters and live to tell about it. And for the foreseeable future, drones will operate alongside – rather than displace – traditional aerial systems. But this is a significant step forward in robotics and a rare glimpse at the future of aerial warfare.

Links:
[1] http://www.navy.mil/submit/display.asp?story_id=75298
[2] http://www.youtube.com/watch?v=wWUR3sgKUV8
[3] http://abcnews.go.com/Blotter/22-raptors-suffer-apparent-oxygen-problems/story?id=15357696
[4] http://www.ecnmag.com/videos/2013/05/engineering-update-11-navy-launches-drone-aircraft-carrier
[5] http://www.ecnmag.com/videos/2013/05/first-launch-x-47b-unmanned-drone-aircraft-carrier
[6] http://www.nationaldefensemagazine.org/blog/Lists/Posts/Post.aspx?ID=1199
[7] http://www.defenseinnovationmarketplace.mil/resources/UnmannedSystemsIntegratedRoadmapFY2011.pdf