

ORION

MADE FOR THE U.S. WARFIGHTER AND TAXPAYER



On August 24, 2013 the Orion Unmanned Aerial System (UAS) successfully completed its first flight. The flight was conducted on a western United States test range, it lasted three hours and thirty-one minutes, and reached a maximum altitude of 8,000 feet above mean sea level.

 **Aurora**
FLIGHT SCIENCES

ORION

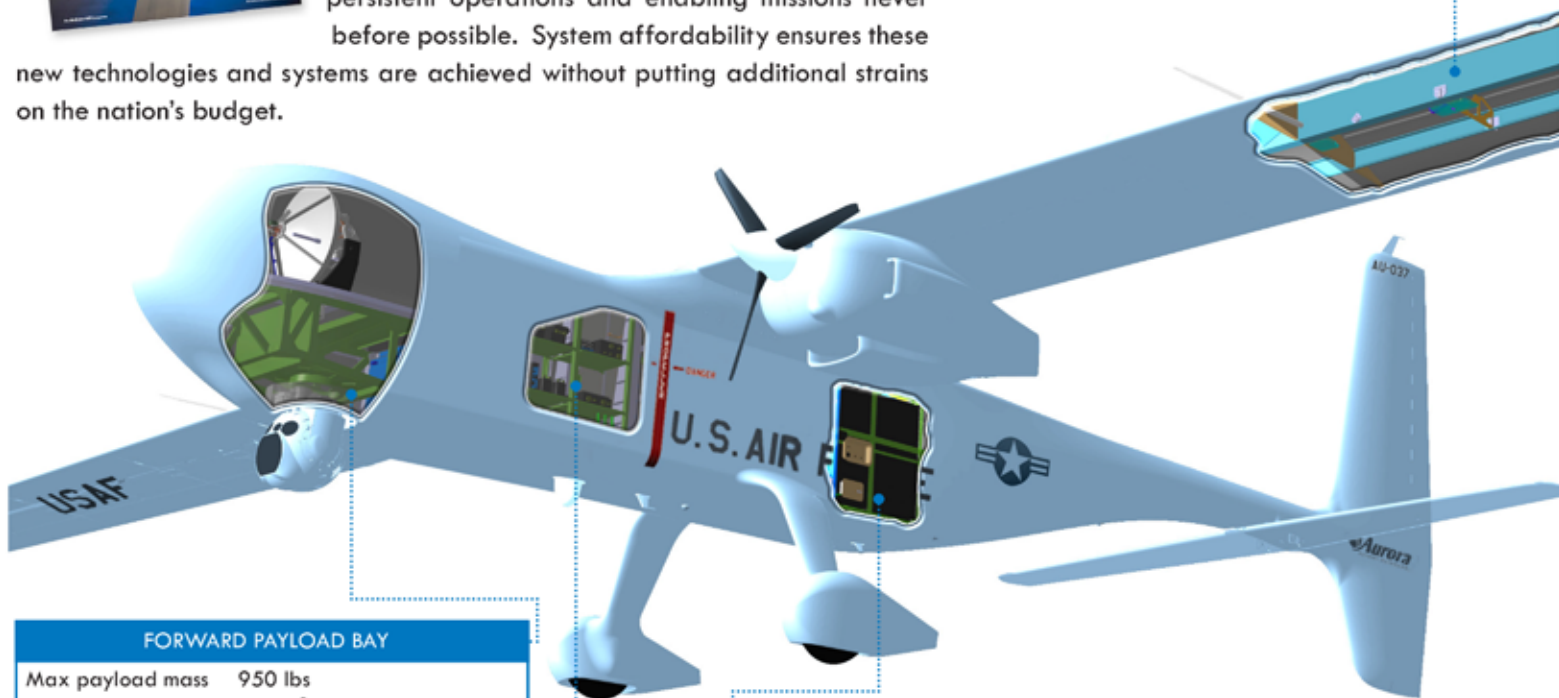
GLOBAL ISR



Orion is a medium altitude persistent Unmanned Aircraft System (UAS) with unmatched endurance, range, mission capacity, affordability, and rapid fielding of new technologies. The combination of mission capability and flexibility enables the warfighter to quickly adapt to new challenges and dynamic conditions, breaking paradigms for persistent operations and enabling missions never before possible. System affordability ensures these

new technologies and systems are achieved without putting additional strains on the nation's budget.

WING HARDPOINTS	
Max payload	1,200 lbs
Volume	21 ft ³ (Standard Pod)
Power	5.4kW (10.8 kW optional)
Field of view	Forward, aft, nadir



FORWARD PAYLOAD BAY	
Max payload mass	950 lbs
Volume	100 ft ³
Power	5.4kW (10.8 kW optional)
Field of view	Forward horizon, nadir, zenith

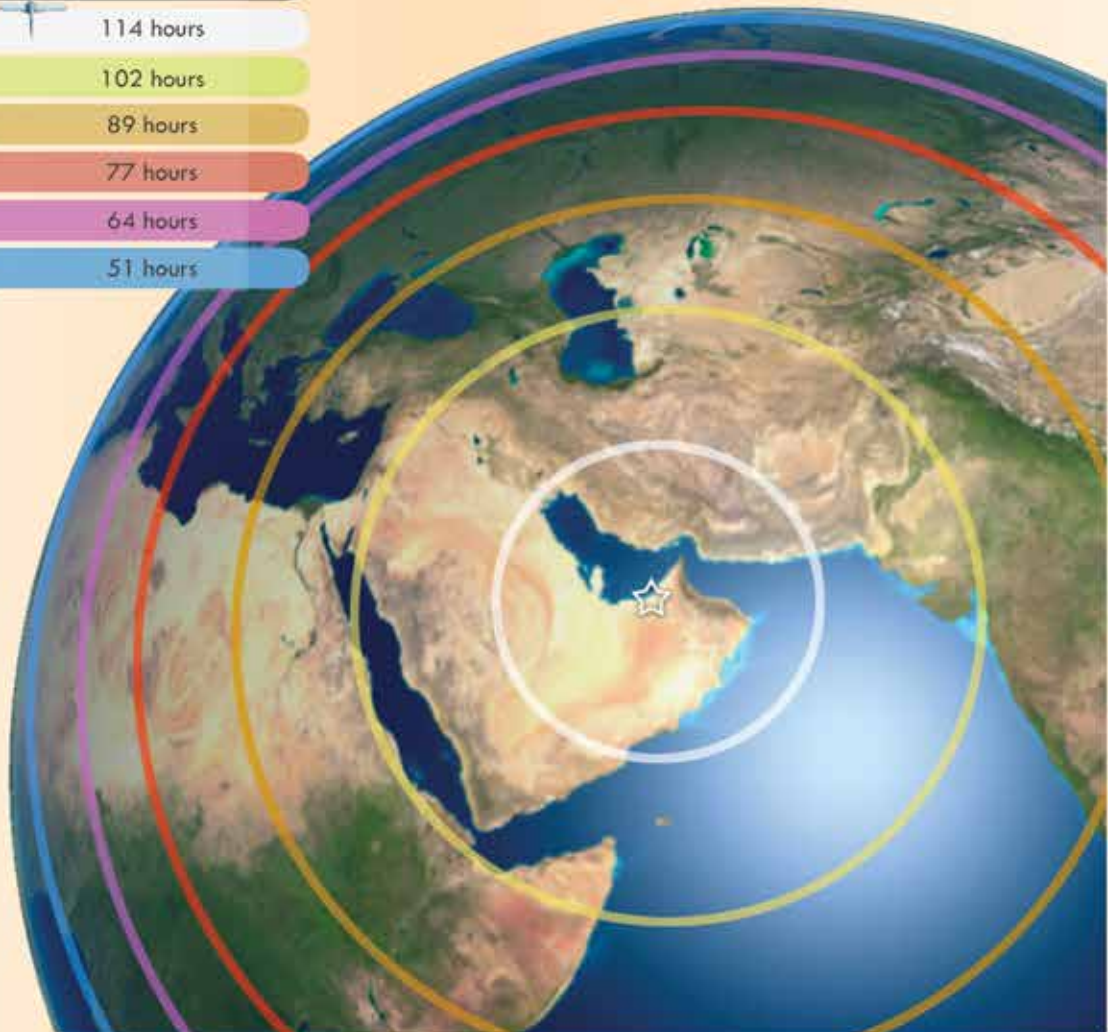
AVIONICS BAY	
Max payload mass	200 lbs
Volume	20 ft ³
Power	5.4kW (10.8 kW optional)
Field of view	Left/right horizon

AFT PAYLOAD BAY	
Max payload mass	850 lbs
Volume	26 ft ³
Power	5.4kW (10.8 kW optional)
Field of view	Aft horizon, nadir

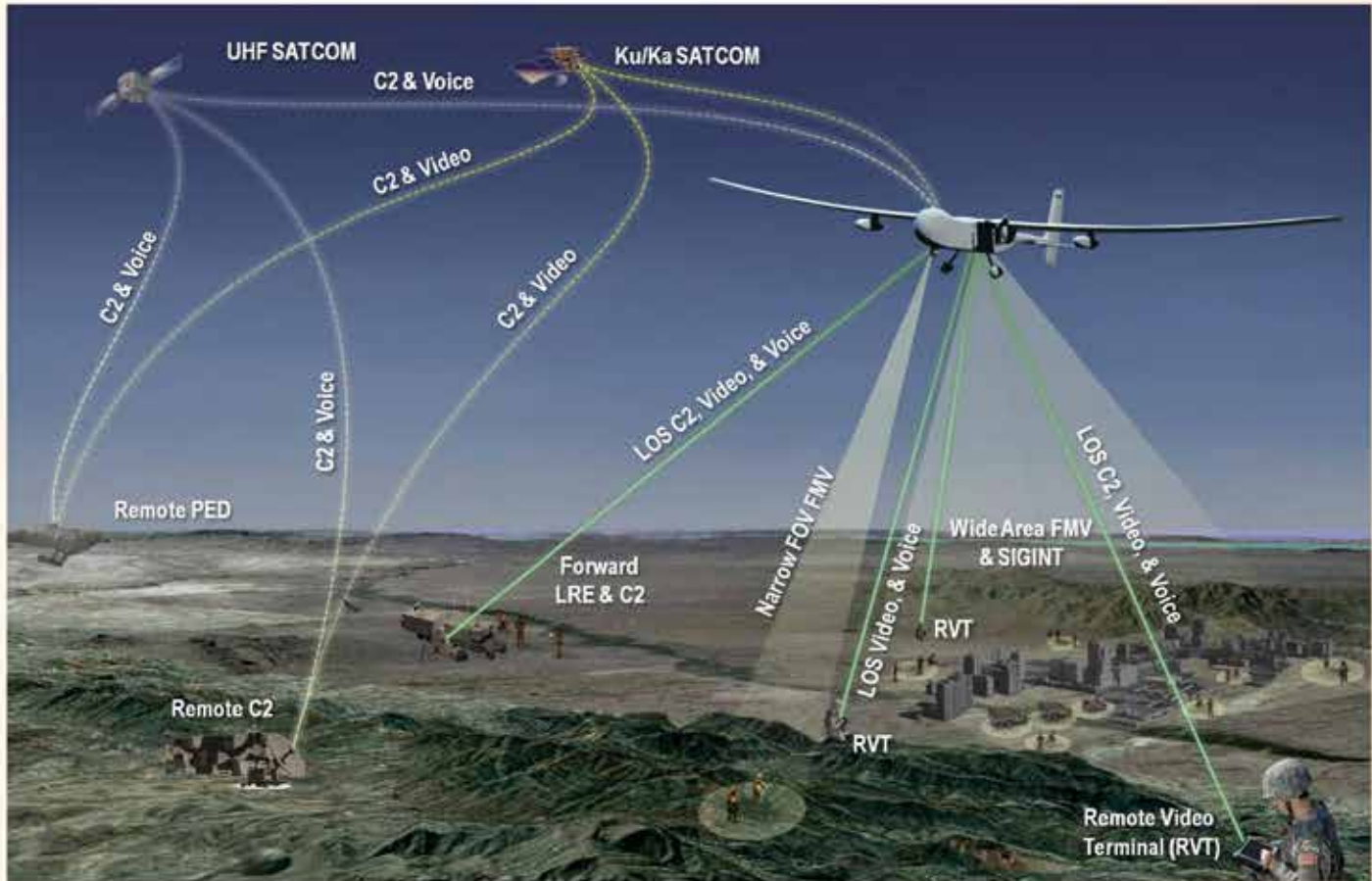
Mission Flexibility and Rapid Deployment of New Capabilities Accommodation for mission payloads on the Orion UAS is analogous to an airborne ISR 'truck', with the ability to deploy over 2,600 lbs of payload, 11kW of dedicated payload power (expandable to 22kW), over 146 cubic feet of internal installation volume not including pods, flexible payload mounting provisions, and large external surface areas available for installation of antenna. Typical UAS require design modification for new mission configurations which can lead to costly block or variant solutions that can take years of development, integration, and test before reaching the field. On the Orion platform, sensors and weapons can be rapidly removed, reloaded, replaced, and integrated based on the prioritized tasks and missions in as little as 24 hours between missions.

Persistent Operation from Remote Locations The Orion UAS combines a highly efficient aerodynamic design with lightweight construction and efficient heavy fuel propulsion enabling over five times the endurance and range of current ISR platforms. This game changing persistence enables a single aircraft to perform a continuous five day mission while carrying over 1,000 lbs of mission payloads, allowing the warfighter to drastically extend the area of coverage. A single Orion UAS can perform two days of persistent surveillance when operating from bases over 3,000 miles away from the target of interest.

Affordability for the Warfighter The Orion's revolutionary persistence allows the platform to spend more time over the target of interest, drastically reducing the time required to transit to and from target locations. This increase in mission availability lowers the amount of aircraft, personnel, fuel, maintenance, and support logistics needed to perform mission sets, cutting operational costs to less than one third of what is achievable using today's deployed assets. In addition, the increased range allows operation from regional bases safely removed from forward basing, further lowering the security, logistical support, and fuel delivery costs, while pulling our soldiers out of harm's way and enabling operations in regions not feasible with today's UAS.



ORION CONCEPT OF OPERATIONS



Strategic and Tactical Operations Generous payload accommodations and optimized flight profile make the Orion UAS ideal for deploying ISR sensors ranging from today's state of the art Full Motion Video (FMV), Signals Intelligence (SIGINT), and Synthetic Aperture Radar (SAR) to tomorrow's sensor technologies including Wide Area Airborne Surveillance (WAAS), hyperspectral imaging, Dismount Moving Target Indication (DMTI), network hubs, and foliage penetration radars. Accommodations for increased onboard processing will enable Orion to generate more relevant information for the warfighter and alleviate bottlenecks in bandwidth by supporting multi-intelligence sensor fusion and enhanced processing, exploitation, and dissemination (PED) of mission data. A radius of operation exceeding 4,000 miles will allow access to areas previously prohibitive for persistent operations, including geopolitical hotspots in the Middle East and Asia, anti-piracy along the coast of Africa, drug traffic monitoring deep into Central and South America, and emergency response to remote island nations.

An Asset to National Defense The Orion UAS empowers the warfighter and emergency responders to quickly adapt to rapidly evolving global challenges and open up a whole new realm of possibilities for persistent mission sets including wide area ISR, ad-hoc communication networks and relay, ballistic missile defense (BMD), maritime domain awareness, disaster relief, and persistent strike. Orion open architecture will assure interoperability with other systems, will drive affordability of mission upgrades, and lower the time from conception to operational deployment of new capabilities. Orion is an ideal model for several of the new DoD acquisition efficiency initiatives to add capability without increasing costs, including:

- Require open system architectures
- Mandate affordability as a requirement
- Incentivize innovation in industry
- Involve dynamic small businesses in key roles in defense acquisition
- Restore competition, affordability and productivity in defense spending

PROVEN AIRFRAME, EXCEPTIONAL CAPABILITIES

ORION AIR VEHICLE:

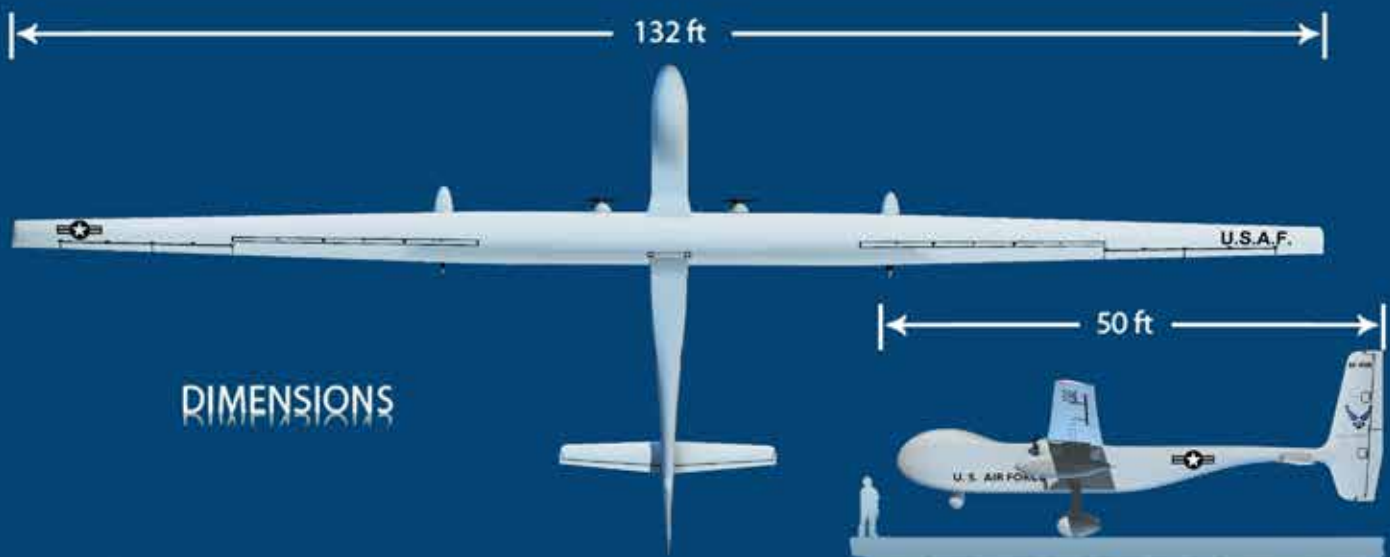
- Gross Take-off Weight: 11,200 lbs
- Useful Payload Weight: 2,600 lbs
- Useful Payload Space: 146+ ft³
- Dedicated Payload Power: 11kW (22 kW Option)
- Propulsion: Dual FAA certified heavy-fuel engines
- Reliability: Triplex avionics for reliable operation

ORION PERFORMANCE:

- Endurance: 120 hours with 1,000 lb payload
- Mission Radius: 4,000 miles with 24 hours on-station
- Ferry Range: 15,000 miles
- Operating Ceiling: 30,000 ft
- Speed: 67-85 knots cruise, 120 knots dash

ORION PAYLOAD OPTIONS:

- Multi-Spectral Full Motion Video (FMV)
- Wide Area Airborne Surveillance (WAAS)
- SAR/Dismount Moving Target Indication (DMTI)
- Hyperspectral Video and Imaging
- LOS and BLOS Communications Relay
- Signals Intelligence (SIGINT)
- Maritime Domain Awareness radars
- Foliage Penetration radars (FOPEN)
- Onboard Processing, Exploitation, and Dissemination (PED)



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Aurora Flight Sciences designs and builds robotic aircraft and other advanced aerospace vehicles for scientific and military applications. Aurora is headquartered in Manassas, VA and operates production plants in Bridgeport, WV and Columbus, MS and a Research and Development Center in Cambridge, MA. To view recent press releases and more about Aurora please visit our website at www.aurora.aero.



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