Aurora Flight Sciences Overview
Arctic Domain Awareness Center

20 April 2021

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WHO WE ARE

Operating at the intersection of technology and robotic aviation

- Founded in 1989 with a vision to utilize autonomous aircraft for atmospheric research
- Designed, produced, and flown more than 70 unique aircraft
- Creating advanced aircraft through the development and application of versatile and intuitive autonomous systems
- Developing experimental aircraft that enable innovative technologies leading to safe, sustainable, autonomous flight
- From technology maturation to integration into the airspace, we are advancing the future of mobility
CENTAUR
OPTIONALLY PILOTED AIRCRAFT

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CENTAUR OFFERS A MULTI-ROLE CAPABILITY

UNMANNED
• Locate air vehicle operator and sensor operator at a ground control station
• Connect via line-of-sight (LOS) or beyond Line-of-sight BLOS datalink

HYBRID
• Operates like an unmanned aircraft, controlled from a ground station
• Comply with traffic avoidance, airspace requirements via onboard safety pilot

MANNED
• Fly like any manned aircraft
• Locate sensor operator on board aircraft or in ground station

VIP TRANSPORT
• Four seat transport
• Easily converted from ISR mission

TRAINER
• Easy to fly
• Multi Engine aircraft for transition

Warning: Contents Subject to the Restrictions on the Title Slide
Introduction to Orion

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Medium-Altitude, Long-Endurance Unmanned Aircraft

- Open architecture, large payload capacity and built-in mission flexibility bring revolutionary capability in an ultra-endurance ISR UAS platform. As an ultra-long endurance UAS platform with an 80-hour endurance capability, Orion provides versatile and cost-effective capabilities.

- Key enabler in persistent surveillance ISR, stand-off monitoring, ultra-endurance loitering and Multi-INT payload deployments. From C-130J deployable solutions to long range remote operations, Orion’s flexible payload capacity and extended on-station time provide a revolutionary mission capability.

- Aurora has worked jointly with the US Air Force to develop a Block 1 Orion specific Military Airworthiness Plan (MACP, AR15-285) and Tailored Airworthiness Certification Criteria (TACC, AR12-041C). These documents define the process and specific criteria for the Block 1 system to obtain military airworthiness.

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Odysseus High Altitude Pseudo Satellite (HAPS) UAS

Ultra-long endurance, multi-sensor high altitude UAS

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Odysseus Persistent Enabled Capabilities

**Defense ISR**
- Odysseus provides persistent ISR coverage for months
- Maritime Domain Awareness
- Communications Relay
- SIGINT & SAR/GMTI
- Multi-Int Tip & Cue

**Data & Communications**
- Odysseus extends terrestrial networks and supplements non-terrestrial networks
  - 4G/5G Direct to Handset
  - Communications Backhaul
  - Aerial Layer Mesh Networking

**Environmental Sciences**
- Odysseus enables long duration science missions
  - Atmospheric Research
  - Earth Observation
  - Natural Resource Management
  - Wildland Fire Management
**STRATOSPHERE**

- 10,000 ft
- 20,000 ft
- 30,000 ft
- 40,000 ft
- 50,000 ft
- 60,000 ft
- 70,000 ft
- 80,000 ft

**OPERATIONS HQ**

Centralized remote monitoring and control

**LAUNCH SITE**

Global reach from few bases

**SATCOM for Flight management & low rate payload data**

**MULTI-MONTH PERSISTENT MISSION IN STRATOSPHERE**

**Aerial Layer Network**

**Line-of-sight downlink for direct payload data**

**Persisted coverage for communications, networking, ISR, PNT surrogate**

**ODYSSEUS SOLAR POWERED HIGH ALTITUDE PSEUDO-SATELLITE**

- Operating altitude 60-85k ft
- Payload 140+ lbs
- Endurance 3+ months
- Speed 50-85 kts true

**Warning:** Contents Subject to the Restrictions on the Title Slide
SUMMARY

- Aurora leverages 30+ years of Long Endurance UAV experience
  - Centaur is a low risk UAV integration into civil airspace
  - Orion is a heavy-lift, multi-day, multi-mission platform
  - Odysseus will redefine persistence, on-station time to be measured in months

- Multi-Mission support across Defense and Commercial requirements
  - ISR, Comms, Search and Rescue, Border Monitoring, Law Enforcement, Drug Interdiction, Marine Safety, Environmental Protection

- Minimal to no additional personnel to be deployed
  - Centaur and Orion: General aviation MX
  - Odysseus: Based in lower 48, supporting Artic AOR
QUESTIONS