

General Atomics Aeronautical



Delivers Situational Awareness

**GA-ASI
Company Overview**

**Presented to:
German & American Industry
19 April 2011**

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General Atomics Aeronautical

- **Aircraft Systems Group**
 - Designs, develops, produces, and supports unmanned aircraft systems
 - Ground control stations
 - Support equipment
 - Logistics and personnel support
 - Integration of all sensors
- **Reconnaissance Systems Group**
 - Designs, develops, produces, and supports sensor systems for unmanned and manned aircraft
 - Lynx SAR
 - CLAW sensor control
 - Integration of sensors in manned aircraft
 - Lasers
 - Data links
 - EO/IR



WT-110-000

Customer Base

 <p>Predator B (Reaper)</p>	
 <p>Predator</p>	
 <p>Sky Warrior (ER/MP)</p>	
 <p>I-GNAT ER</p>	
 <p>Altair</p>	
 <p>Altus</p>	
 <p>GNAT - 750, I-GNAT</p>	

Enabling Technology – Predator UAS



***Air&Space* magazine selected (June 08) as one of the
“Top 10 Aircraft that Changed the World”**

GA-ASI Unmanned Aircraft System (UAS)



Two Line-of-Sight (LOS)
C-Band Data Links



3-5 aircraft



Ground Control
Station (GCS)



Beyond Line-of-Sight (BLOS)
Ku SATCOM Data Link



Engine Stand



Wing Handlers



Fuselage Stands



Basic Tool Kits

Ground Support Equipment (GSE)

Payloads are Key Systems Integration — Core Competency

Payload Types	System Modes
EO /IR/LD 	<ul style="list-style-type: none"> • Wescam MX-15, MX-20, M-12, M14TS • IAI – TAMAM/MOSP s80/770 • Raytheon Camera Systems • + Others
Radar 	<ul style="list-style-type: none"> • GA-ASI Lynx SAR/GMTI • Raytheon SeaVue • Telephonics APS143V# • ELTA/EL/M2022A(V3) • + Others
Comm 	<ul style="list-style-type: none"> • ARC-210 and Extender Comm Relay • RVT Air-to-Air and Air-to-Ground Video • Indium Low Data Rate Data Link • Harris PRC-117 Radio Relay • + Others
Specialized and Scientific Sensors 	<ul style="list-style-type: none"> • Finder mini-UAV • CSAR (Personnel Locator Beacon) • NASA ACES (lightning sensors) • RAF DB-110 • NASA AMS (wild fire sensor) • + Others
Classified Programs	<ul style="list-style-type: none"> • Numerous Payloads

Western States Fire Support America

- Imaged 26 major fires across nine states
- Flew from Edwards AFB
- Provided real-time information
- Maximized scarce fire fighting resources
- Minimized hazards to personnel



Predator C Avenger: Next Generation Aircraft



- Pure jet
- Long endurance

Flight Video



Flight Summary

Every second of every day, over 54 Predator-series aircraft are airborne worldwide

- **Calendar year 2006**
 - 80,000 hours
- **Calendar year 2007**
 - 130,000 hours
- **Calendar year 2008**
 - 235,000 hours
- **Calendar year 2009**
 - 295,000 hours
- **Calendar year 2010**
 - 375,000 hours
- **Calendar year 2011**
 - Flying over 38,000+ hrs/month

GA-ASI Proven Aircraft Systems Provide

- **Supporting forces overseas, in homeland defense and civilian missions**
 - Military persistence, strike & ISR– land or sea
 - Border protection
 - Civilian missions (fire mapping & disaster assistance)
- **Expanding mission capabilities**
 - Continuing Predator-series UAS upgrades
 - New aircraft and Advanced Cockpit development
 - Advancing sensor technology (e.g. EO/IR, SAR, GPS, Laser)
- **Providing Interoperable UAS capability with U.S. military forces, allied forces, DHS and DoD assets**

GA-ASI Proven Aircraft Systems Provide (Cont.)

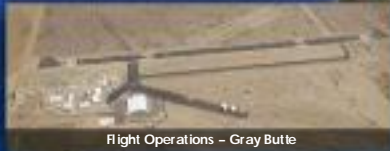
- **Immediate NATO Interoperability**
 - GA-ASI MALE UAS operated by: USAF, USN, USA, UK, and Italy
 - MQ-9 Coalition Ops are ongoing in Afghanistan
- **Support to forces overseas, in homeland defense and civilian missions**
 - Military persistence, strike & ISR– land or sea
 - Border protection - land and maritime
 - Disaster assistance
 - River flooding, hurricanes, earthquakes, wild fires
- **Expanding mission capabilities**
 - Continuing Predator-series UAS upgrades
 - New aircraft development
 - Advancing sensor technology (e.g. EO/IR, SAR, GPS, Laser)
 - Developing “Next Gen” GCS

GA-ASI Proven Aircraft Systems

Multi-mission MQ-9 exceeds all requirements – no risk

- Proven, reliable, and operational
- Persistent situational awareness
- Available now

General Atomics Aeronautical Systems Facilities



Flight Operations – Gray Butte



Flight Operations – El Mirage



R&D – Adelanto



Headquarters – Poway



Engineering – Poway



Manufacturing – Poway



Engineering – Poway



Composite Manufacturing – Sabre Springs



Reconnaissance Group – Sabre Springs

4,800+ employees

240,000 m²

Corporate Campus – Poway (140,000 m²)



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Facility Production Capacity (Monthly)

	Current Facilities
MQ-1 Predator	10
MQ-1C Sky Warrior	
MQ-9 Reaper	5
Total Aircraft Per Year	180
Aircraft Ship Set Spares	6-7+
Total Ship Set Spares Per Year	84+
Ground Control Stations	8
Total Ground Stations Per Year	96

Flight Operations - Gray Butte



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GA-ASI

Work with German Companies



Currently GA-ASI Advanced Products uses:

- **Smart Material Corp/Dresden**
 - Actuators
- **GOM GmbH/Braunschweig**
 - Providing metrology equipment, virtual assembly tooling

GA-ASI examining future cooperation with German companies

RUAG Germany

- **MOU with GA-ASI signed 21 Feb 2011**
 - RUAG will assist in the adaptation of hardware to German national standards, offer guidance and support for German airworthiness certification requirements, and provide logistical, operational, and maintenance support of Predator B after delivery to the Federal Republic of Germany
- **ZEPPELIN Mobile Systeme GmbH: Provision of NATO-standard shelters for Ground Control Stations(GCS)**
- **UIT (STD): Assembly of GCS**
- **Carl Zeiss Optronics GmbH: future payloads**
- **Rohde & Schwarz GmbH: future payloads & communications**
- **PLATH GmbH: Future payloads & spectrum management**
- **Tesat-Spacecom GmbH & Co. KG: Satellite laser communications**

Spezialtechik Dresden (STD)

- **GA-ASI sister company**
- **Supplements and assists GA-ASI strategic development efforts in Germany**
- **Celebrated 20th anniversary in 2010**
- **Separate business in its own right**