Global Hawk
California’s Leadership in UAVs: The View from 60,000 Feet

California Perspective Symposium

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Northrop Grumman Aerospace Systems
Major California Presence

- Largest aerospace/defense company: 27,000 employees in California
- Business footprint in 23 counties
- Employee presence in:
  - 49 of 53 congressional districts
  - 40 State Senate districts
  - 80 Assembly districts
- $2.7 billion payroll
- $4.8 billion in contracts with 4,910 California suppliers

California Economic Impact: $7.5 Billion
Strategic Communications And Branding Statement

Northrop Grumman
Leader in Unmanned Systems from Sea, Land, Air and Space

• As a trusted leader in global security solutions, Northrop Grumman has a strong and broad portfolio of unmanned systems and mission technologies that have been delivered to customers worldwide for nearly 70 years. From sea, ground, air and space, the company invests in solutions that meet customer demands, improve mission effectiveness and reduce costs by advancing technologies in key areas such as autonomy, systems integration, mission and information management, software, sensors and training.

• No matter what the mission, Northrop Grumman produces affordable, reliable and effective unmanned systems and technologies that enable customers to perform.
In the beginning...

Unmanned aircraft had primitive guidance, and served as aerial targets or as surrogate cruise missiles.

...flew preprogrammed courses, or were remotely operated from manned aircraft...

In Vietnam...

Reconnaissance drones were air-launched...

...And were recovered by parachute, with film processed afterwards.
Why Unmanned Systems?

Mission Effectiveness
Greater Maneuverability

Protect Lives
Reduced Risk to Aircrew

Affordability of Capability
Greater Endurance

Greater Stealth (Survivability)

No Longer Dull, Dirty, or Dangerous

Smaller force structure, smaller ops / maintenance / training costs

Irani TV image of “downed aggressor”

US has greater flexibility and ability to deter unfriendly acts

Reduced Overall Cost

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Global Hawk Video
3 missions flown - 700 + images collected
Customer very pleased with results

Approved Tasking
• Up to one week of sorties
• Night-time only up to 16 hours duration
• Near-real-time IR imagery
• Exploit & disseminate using USAF Intel
• Deliver to CDF & FEMA

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USAF was successful with Global Hawk Because ..... 

- Flies above all other air traffic at 60,000 feet
- Responds quickly to tasking due to high ground speed of 320 knots
- Broad area coverage sufficient to image 40,000 sq miles a day
- Tasking, collection, and exploitation very similar to daily wartime mission
- USAF information architecture used every day moving Global Hawk imagery
Hurricane Ike

GHMD SAR imagery from Hurricane Ike: Louisiana and Texas Gulf region 13-14 Sep 08
Global Hawk Over Haiti

- First mission – Jan 14
  - On station 37 hours after disaster
  - 14 hours time on station

- Second Mission – Jan 15
  - 16 hours time on station
  - 970 pictures – most of any single sortie

- Total Support:
  - 6 flights
  - 122 hours
  - Sensor ‘up time’ = 99%
  - 3607 images (EO/IR/Radar)
  - Imagery distributed as fast as done with combat operations
Global Hawk Support

- Routes Open for Relief and Medical Assistance in Port-au-Prince
- No Damage Observed to Key Bridge and Roads
- NASA Imagery - Mountains in Alaska
- Ad Hoc Survivors Camp
- Presidential Palace Damaged by Quake

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Fire Scout
Fire Scout in Action
UCAS On-Land Catapult Test
A Dynamic National Airspace System . . .

Source: JS Walker Group Aviation Solutions (AVIONICS Magazine)

Courtesy NASA

http://www.youtube.com/watch?v=d9r3H4H7zk  Title: A Day in the Life of Air Traffic Over the United States

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What Are Unmanned Systems
More Than A Vehicle

Unmanned Systems will provide protective functions plus other beneficial services in a safe, reliable, consistent, and affordable manner.

Mission Platforms
Mission Capabilities
Sensors
Communications
Tasking, management and control
Ground Stations
STEM: Working with the Next Generation

• Northrop Grumman supports:
  • California Academic Decathlon
  • California State Science Fair
  • California Science Center
  • Space Camp
  • Sally Ride Science teacher training
  • National Engineers Week activities
  • MATHCOUNTS
Weightless Flights of Discovery

Inspirating Students by Inspiring Teachers
THE VALUE OF PERFORMANCE.

NORTHROP GRUMMAN