

U. S. Customs and Border Protection Office of Air and Marine



UAS on Leading Edge in Homeland Security

Presented by:

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Customs and Border Protection
Office of Air and Marine



U.S. Customs and
Border Protection

*National Defense Industrial Association (NDIA)
04 October 2012*

Office of Air and Marine



- World's largest law enforcement air and marine force
- 21 types of aircraft; 11 types of marine vessels
- Operating 267 aircraft and 298 marine vessels from 84 locations throughout the United States
- Leading edge deployment of UAS in the national airspace



U.S. Customs and Border Protection

Air and Marine UAS Operations



- **Leading edge border security technology**
- **CBP operations shaping UAS policy debate**
- **Sensor “technology push” continues to expand unmanned platform capabilities**
- **CBP UAS vision provides agile response to Homeland Security threats**



Air and Marine UAS Operations



- FAA COA**
- Approved
 - In Work
 - Emergency
 - Test
 - Transit
- LRE
 - MCE
 - LRE/ MCE
 - Contingency LRE

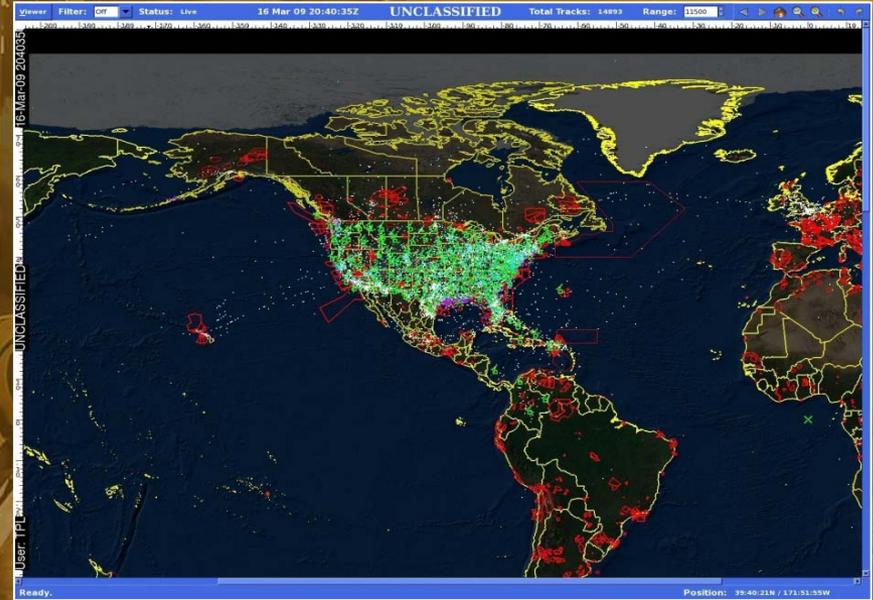


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Air and Marine Operations Center (AMOC) Riverside, CA



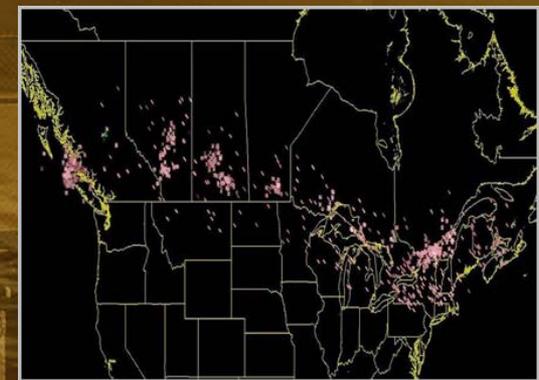
- 450 FAA, DoD, Aerostat and Canadian radar feeds
- Interagency/International integrated staff
- Multiple law enforcement data bases and communications networks
- Detects, sorts, and monitors suspect air and marine tracks of interest
- PED cell analysis capabilities



OPERATIONS FLOOR



PED CELL LAYOUT



CANADIAN RADAR FEEDS



U.S. Customs and
Border Protection

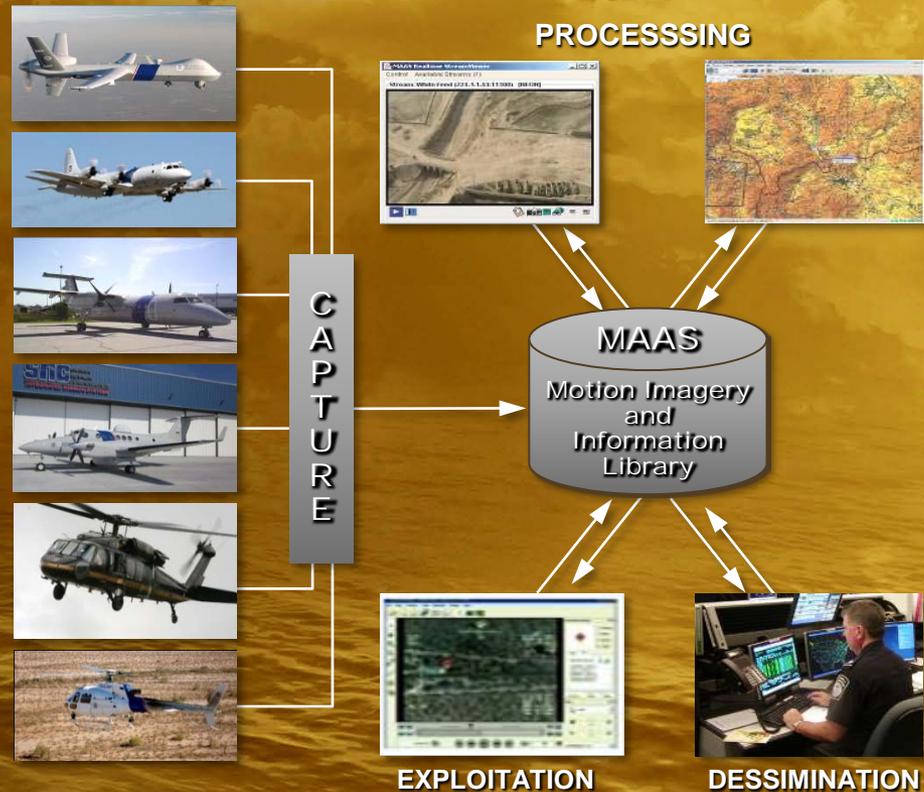
Processing Exploitation Dissemination (PED) Cells Multi-Intelligence and Archive System (MAAS)



- Two CBP operational PED Cells - AMOC & Grand Forks, ND
- Full Motion Video (FMV) capture from multiple sensed platforms
- Real-time FMV exploitation via MAAS
- Timely dissemination to operational users



PED Cell



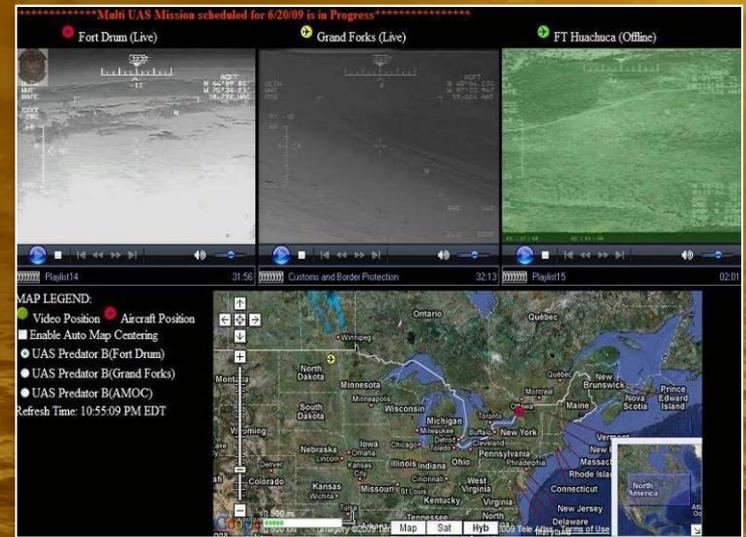
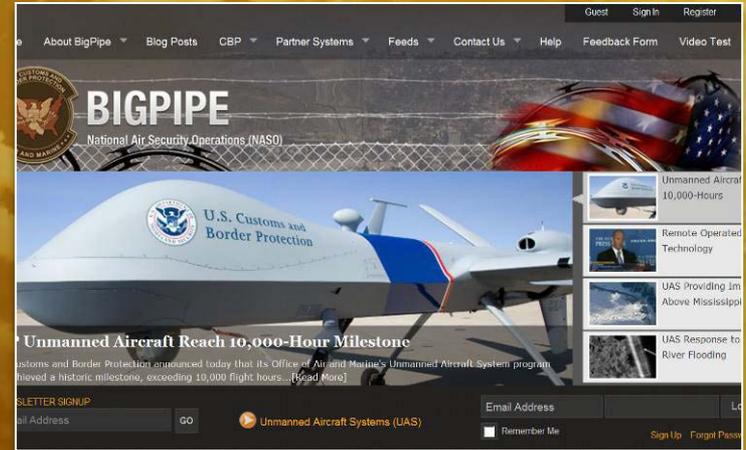
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PED Cells Enhance Collection Missions!

Air and Marine BIG PIPE Innovation



- Innovative IT program feeds live images across World Wide Web
- Near real-time EO / FLIR / Radar streaming video
- Agile feeds to mission operators worldwide



U.S. Customs and Border Protection

Ground Control Station's (GCS)



Primary Launch and Recovery Element (LRE) and Mission Control Element (MCE) GCS

Baseline GCS (QTY 4)



Launch and Recovery Element (LRE) and Mission Control Element (MCE) GCS with maritime capable GCS

Maritime GCS (QTY 1)



Self-contained, highly mobile, fully mission capable GCS that is used to support forward operating locations

Mobility GCS (QTY 1 of 4 delivered)



Emergency GCS and accompanies baseline, maritime and mobility GCS as a backup "recovery" asset

Portable GCS (QTY 5)



GCS integrated into a Humvee. Mobile GCS capable of remote land operations

Humvee GCS (QTY 1)



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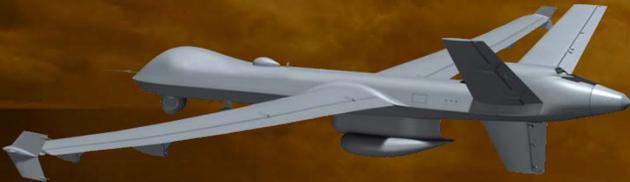
CBP Air and Marine MQ-9 Family



Predator B Land Mission UAS
CBP 104, 108, 110, 119, 125

PROVEN FLIGHT SYSTEMS

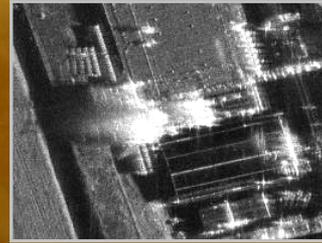
- Predator family of aircraft flown by USAF more than 18 years and 2,000,000 hours
- More than 17,000 hours in border Security / Homeland Security role



Guardian Maritime Mission UAS
CBP 113, 159, 233 (Sep 12)



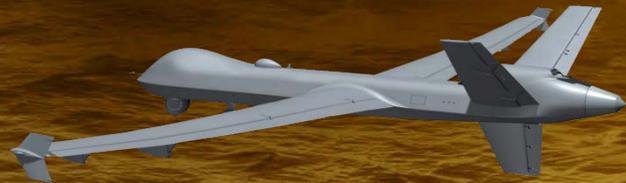
SeaVue/OSI Radar



Lynx SAR Radar Image

PAYLOADS

- Enhanced HD MTS-B EO/IR
- SeaVue Radar with OSI Processor
- Lynx Synthetic Aperture Radar (SAR)
- Law enforcement and civilian communications (UHF/VHF)
- Ku-band / INMARSAT satellite communications links
- Automated Information System
- Laser Illuminator



Multi-Role Variant (MRV) UAS
CBP 213, 216



Guardian GCS

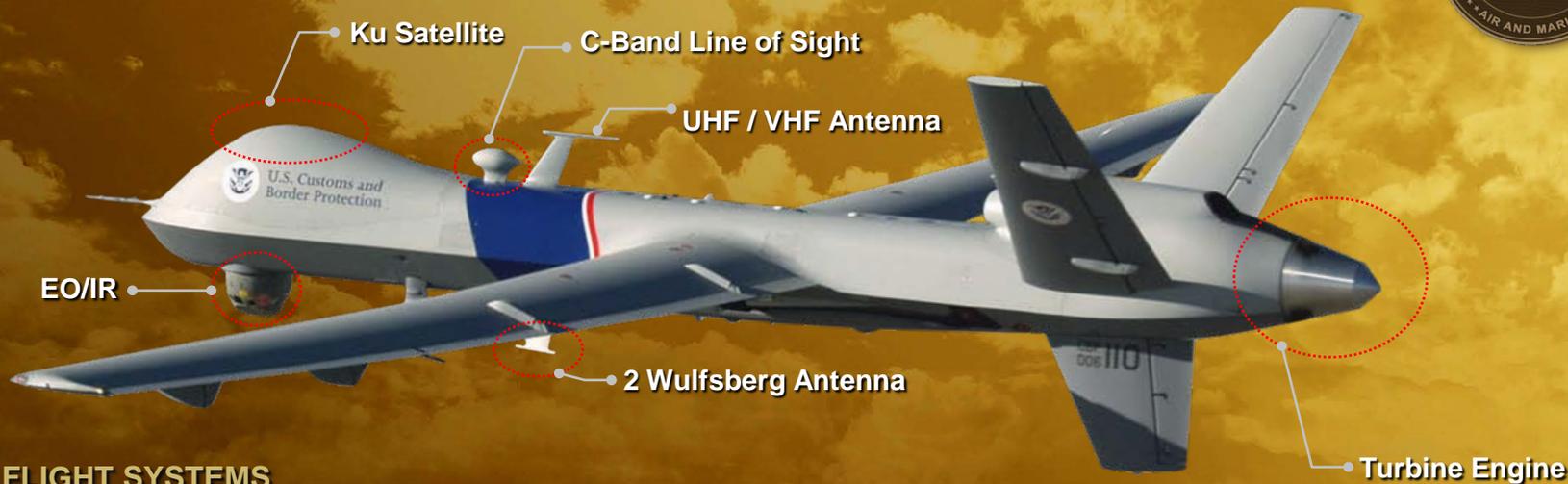


Enhanced HD MTS-B EO/IR



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Air and Marine Predator B



PROVEN FLIGHT SYSTEMS

- Predator family of aircraft flown by USAF more than 18 years and 2,000,000 hours
- More than 10,000 hours in border Security / Homeland Security role



MTS-B EO/IR IMAGE



LYNX SAR IMAGE

PREDATOR

- Wing Span: 66 ft
- Length: 36 ft
- Max Takeoff Weight: 10,500 lb

PERFORMANCE

- Range: Up to 3200 nm
- Max Demonstrated Endurance: 21 hrs
- Air Speed Max / Transit / Loiter: 240+ / 180 / 110 kts

PAYLOADS:

- Multi-Spectral Targeting System (MTS-B) EO/IR
- Lynx Synthetic Aperture Radar (SAR)
- Law enforcement and civilian communications (UHF/VHF)
- Ku-band / Iridium satellite communications links

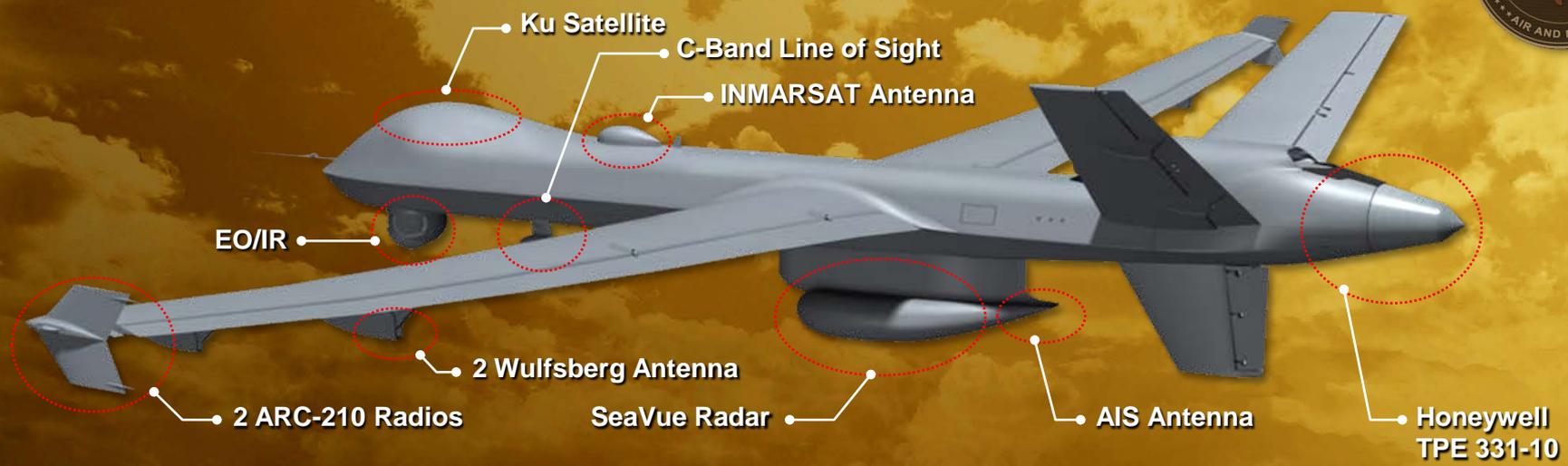
OPERATIONAL AIRCRAFT

- CBP 104, CBP 108, CBP 110, CBP 119, CBP 125



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AIR and MARINE Guardian



ENHANCED EO/IR



SEAVUE RADAR WITH OSI PROCESSOR



GUARDIAN GCS

GUARDIAN

- Wing Span: 66 ft
- Length: 36 ft
- Max Takeoff Weight: 10,500 lb

PERFORMANCE

- Radar Operating Altitude: 3-20k ft
- Max Demonstrated Endurance: 17 hrs
- Air Speed Max/Transit/Loiter: 230+/180/105 kts

OPERATIONAL AIRCRAFT

- CBP 113, CBP 159

FUTURE AIRCRAFT

- CBP 233 (SEP 2012)

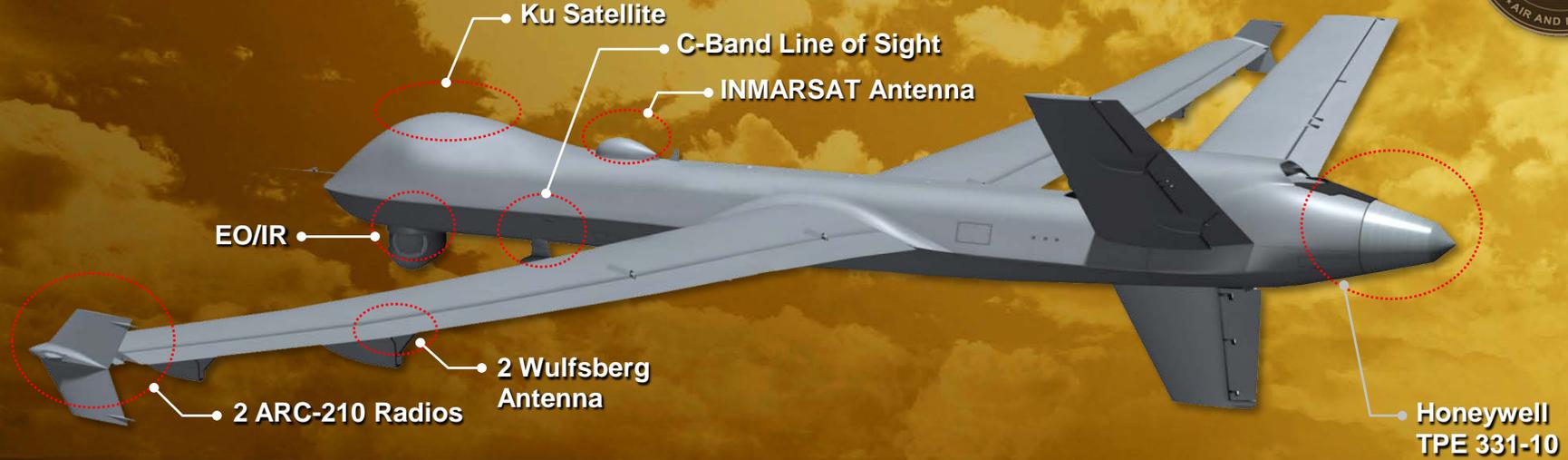
PAYLOADS:

- Enhanced MTS-B EO/IR
- SeaVue Radar with OSI Processor
- Law enforcement and civilian communications (UHF/VHF)
- Ku-band / INMARSAT satellite communications links
- Automated Information System



U.S. Customs and Border Protection

AIR and MARINE Multi-Role Variant



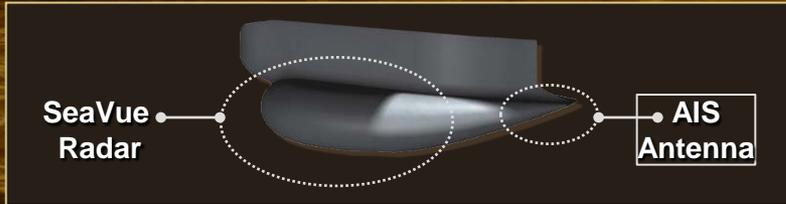
Lynx Gimbal Assembly



Lynx Radar Electronic Assembly



SeaVue Radar with OSI Processor



PREDATOR B

- Wing Span: 66 ft
- Length: 36 ft
- Max Takeoff Weight: 10,500 lb

PERFORMANCE

- Radar Operating Altitude: 3-20k ft
- Max Demonstrated Endurance: 17 hrs
- Air Speed Max/Transit/Loiter: 230+/180/105 kts

OPERATIONAL AIRCRAFT

- CBP 213, CBP 216

PAYLOAD OPTIONS:

- HD MTS-B EO/IR
- SeaVue Radar with OSI Processor
- AIS
- Law enforcement and civilian communications (UHF/VHF)
- Ku-band / INMARSAT satellite communications links (voice/C2)
- LYNX SAR w/DMTI
- Permanent Magnetic Alternator (PMA)
- Laser Altimeter



U.S. Customs and Border Protection

Multi-Role Variant for All Future Acquisitions!

UAS Border and Maritime Security Missions



- Grand Forks, ND LRE & MCE site for Northern border and MCE site southwest border operations
- Sierra Vista, AZ LRE & MCE site for all operations
- Corpus Christi, TX LRE & MCE site for south Texas and Gulf operations
- Cape Canaveral AFS, FL LRE & MCE site for Caribbean and foreign deployments



CARIBBEAN MONA PASS COA



ALIEN CROSSINGS



ULTRA-LIGHT AIRCRAFT



MARITIME TARGETS OF INTEREST



U.S. Customs and Border Protection

National Contingency Response Missions

Federal, State, and Local Emergency Response



RIVER FLOODING, ND



NATCHEZ, MS



MONUMENT FIRE, AZ



DEEP WATER HORIZON



DUNCAN POINT, LA

- Contingency response for floods, fires and hurricanes
- ▲ SAR mapping change detection analysis
- Live full motion EOIR imagery
- Real time dissemination to mission operators worldwide

Emergency Certificates of Authorization (COA)



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Experience in Humanitarian Mission Enhance Capability for Security Response!

Southwest Border UAS Operations

Ft. Huachuca, AZ



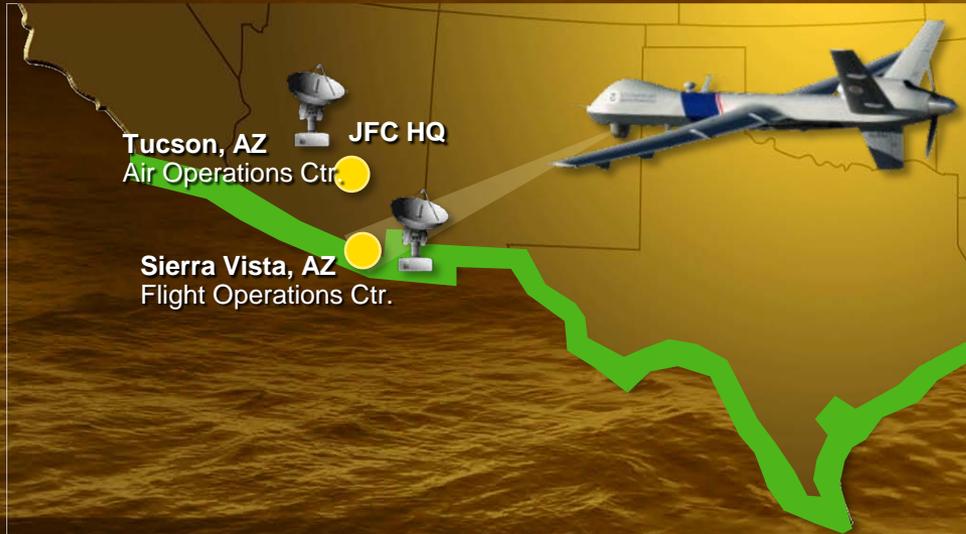
- SW Border Hub for training, test and operations
- Predator Operations Center: Davis Monthan AFB
- 4 operational Predator B aircraft assigned
- AZ Joint Field Command mission assets



ARIZONA JOINT FIELD COMMAND HQ



PREDATOR OPS CENTER
DAVIS MONTHAN AFB



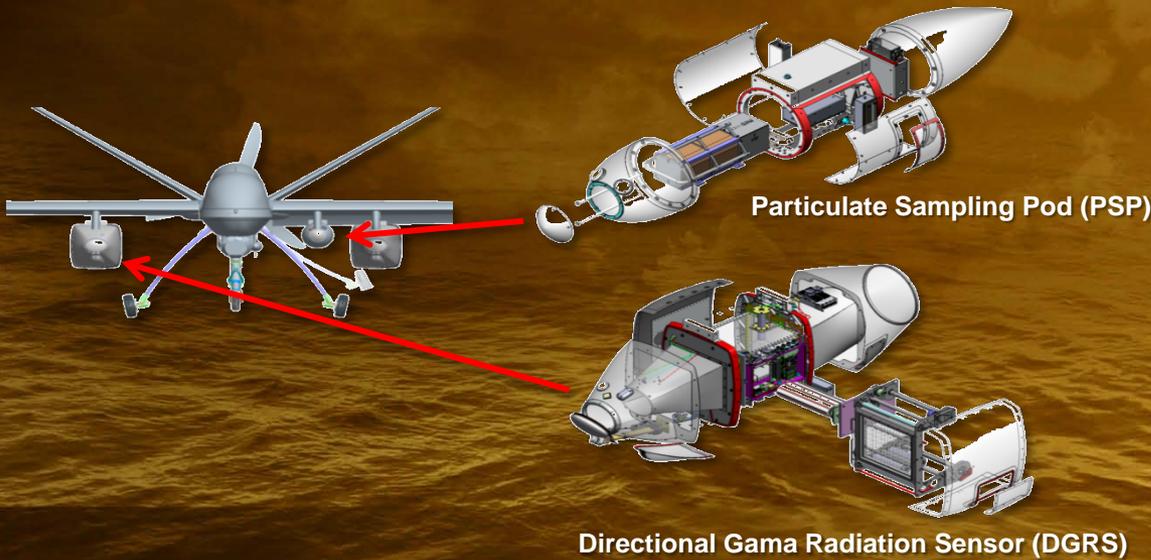
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Northern Border UAS Operations

HARVESTER SENSOR "TECHNOLOGY PUSH"



- Northern Tier training and deployment base
- Test site for interagency HARVESTER ACTD
- USAF/CBP partnership for contaminated particulate detection technology



NORTH DAKOTA ASSIGNED AIRCRAFT



NORTH DAKOTA UAS OPERATIONS CENTER

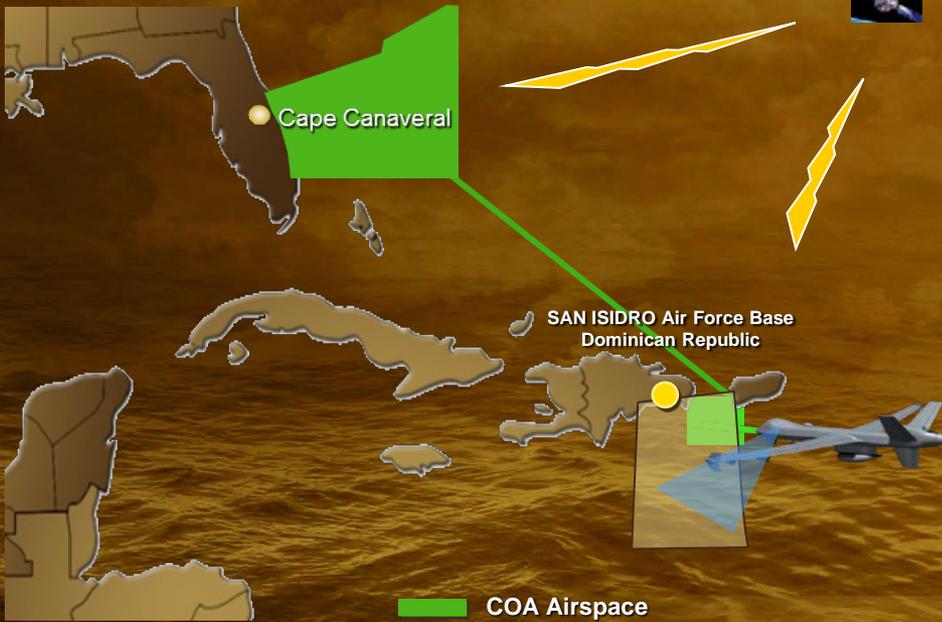


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Dominican Republic Deployment *Operation Caribbean Focus*



- Interagency CBP / USCG / DEA partnership
- ACTD for Caribbean deployed UAS operations
- Dominican Republic hosts Guardian operations – San Isidro AFB deployment
- Prototype for future transit zone UAS deployments



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Operation "Caribbean Focus"

May 31 – July 18, 2012

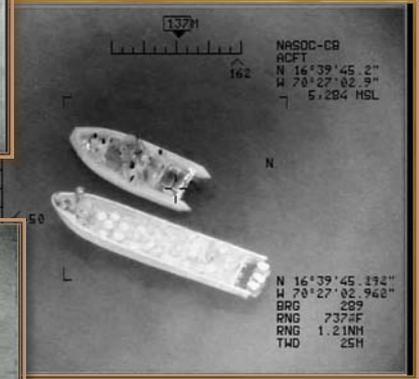


Detachment Summary:

- 30 sorties flown
- 237.4 flight hours

Mission Results:

- 5 interdiction events
- 3,956 lbs cocaine valued \$296 million
- 1,908 lbs marijuana valued \$5 million



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National UAS Operations Strategy

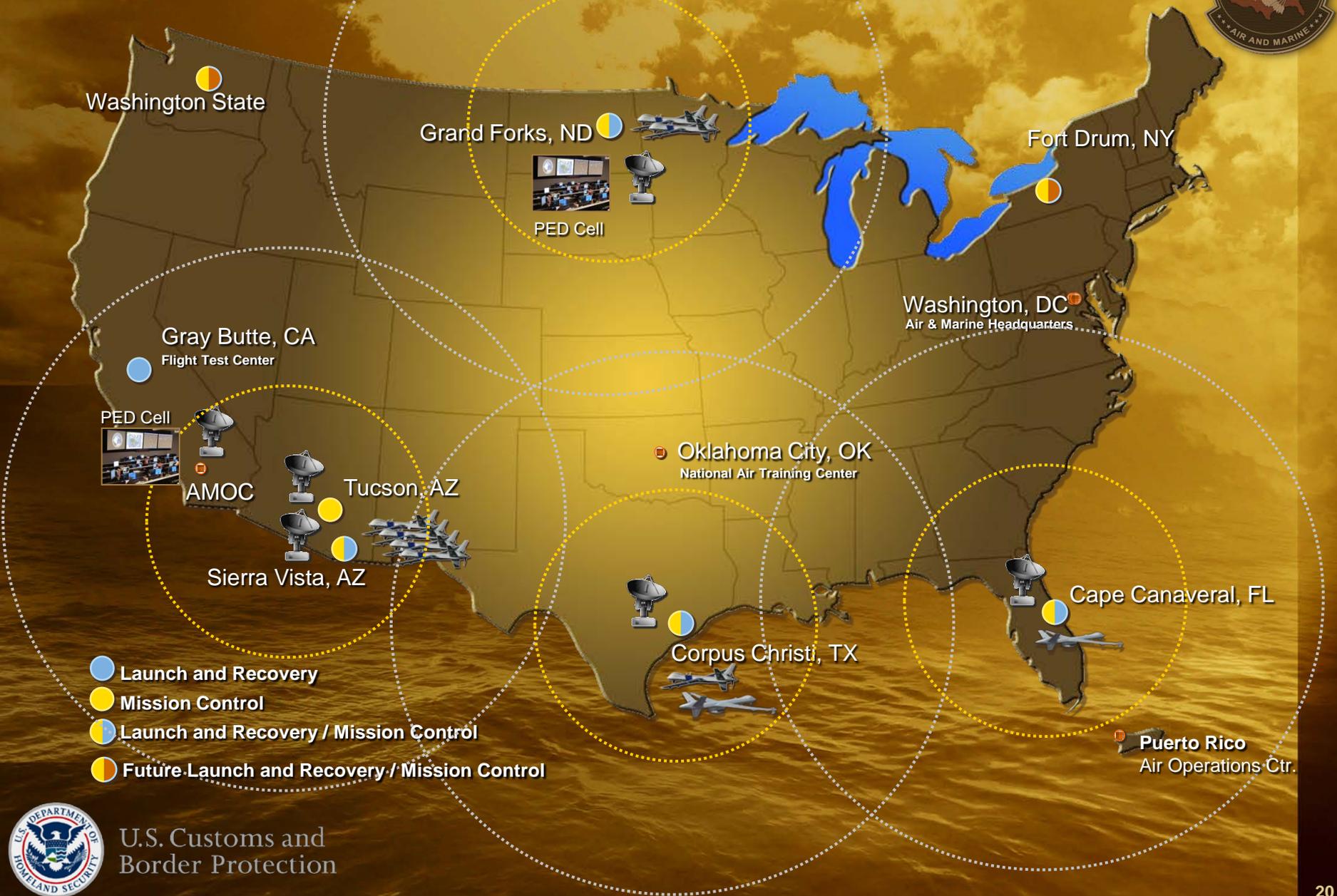


- Multiple LRE sites support border security missions
- Rapid contingency deployment supports Federal / State / Local Missions
- Guardian/MRV supports Gulf, Caribbean and Transit Zone Operations



U.S. Customs and Border Protection

UAS National Security Response Vision



- Launch and Recovery
- Mission Control
- Launch and Recovery / Mission Control
- Future-Launch and Recovery / Mission Control



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Air and Marine UAS Operations

Remain on Leading Edge!



- **Border Security and Contingency Response Missions enhance Operational Experience and Expertise**
- **UAS operations continue to expand and mature**
- **Sensor technologies keep UAS platforms on leading edge of border security**
- **CBP UAS Deployment Vision strengthens National Security Response Capability**





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