

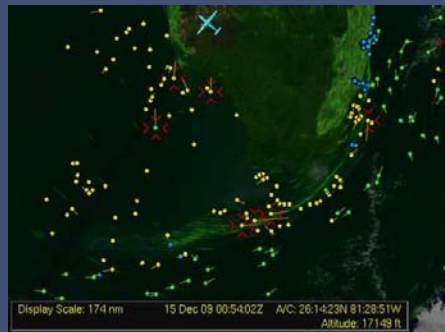
CBP / USCG UAS Joint Program Office

Guardian UAS

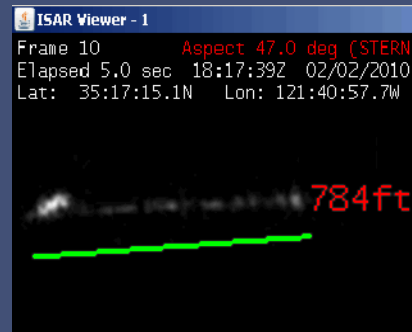
Persistent Maritime Surveillance



Surveillance and Detection



Classification



Identification



Increased Prosecutions



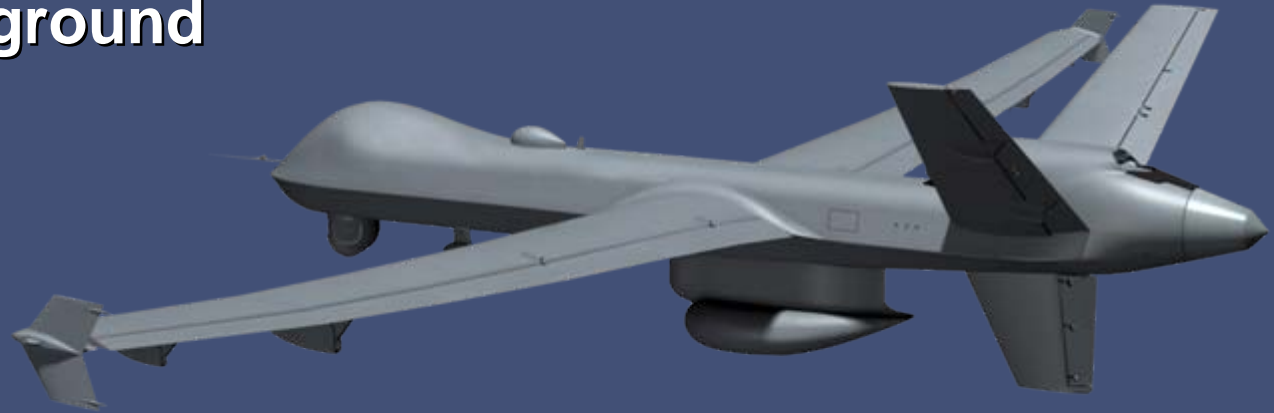
U.S. Customs and
Border Protection

Guardian Enters Service 2010!

Guardian Overview



- **CBP UAS Background**
- **Joint Efforts**
- **Aircraft**
- **Sensors**
- **Ocean Surveillance Initiative**
- **Deployments**
- **Maritime Challenges**



UAS Operating Locations Increasing



GRAY BUTTE, CA
Flight Test Center

GRAND FORKS, ND
Flight Operations Center

FORT DRUM, NY
Forward Operating Location

WASHINGTON, DC
Air & Marine Headquarters

RIVERSIDE, CA
Air Operations Center

OKLAHOMA CITY, OK
National Air Training Center

SIERRA VISTA, AZ
Flight Operations Center

FLORIDA:
Maritime Operations Center
2010 Stand Up

CORPUS CHRISTI, TX
Maritime Operations Center
Future 2010 MCE Site

NORTHERN REGION
SOUTHWEST REGION
SOUTHEAST REGION



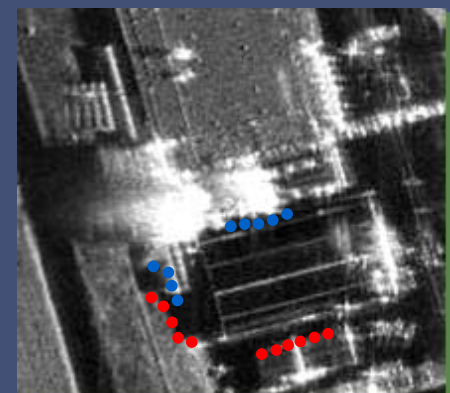
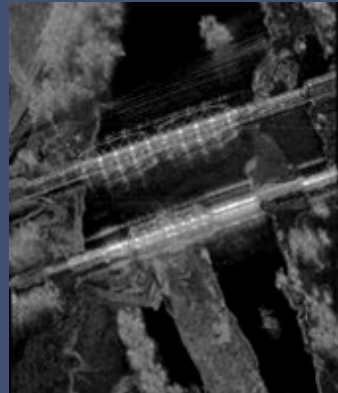
2010 Expansion into Maritime Domain!

UAS Support to Domestic Incidents



FEMA Support

- Disaster response / recovery IAW Stafford Act and HSPD-5
- Long duration surveillance flights for CY08-09 hurricanes, flooding
- Real-time EO/IR and SAR change detection
- Situational awareness, critical infrastructure assessment, vector emergency response



Joint DHS UAS Program

Air & Marine / U.S. Coast Guard Initiative



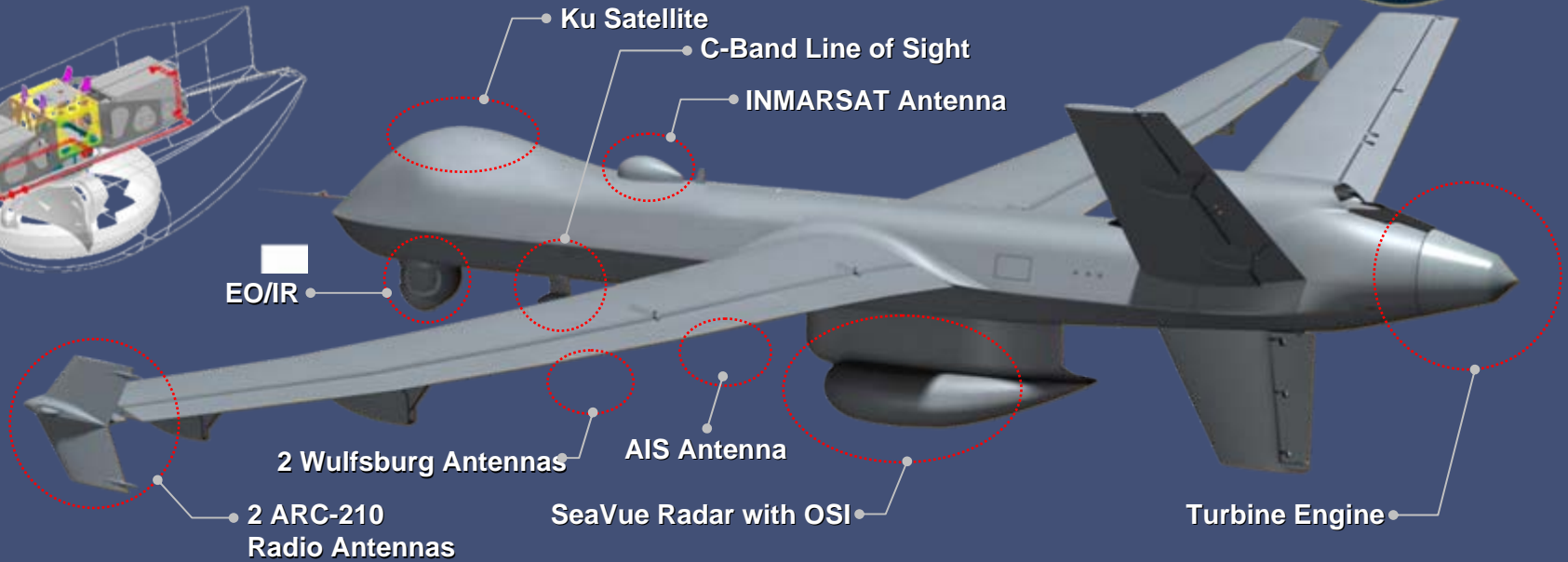
"The Guardian"

- Joint Program Office to develop Maritime Variant Predator
- Program Managed by CBP and USCG team
- USCG Pilot training in ND and AZ ongoing - 2 pilots certified
- Planned operations focus on Transit Zone Maritime Domain Awareness



The Guardian

Joint DHS Maritime Variant



- Predator B airframe
- External centerline radar pod
- Enhanced Raytheon SeaVue Radar/Upgraded MTS-B EO/IR
- AIS and multi-comms
- Laser Altimeter/Pitch Indicator

Guardian Ground Control Station



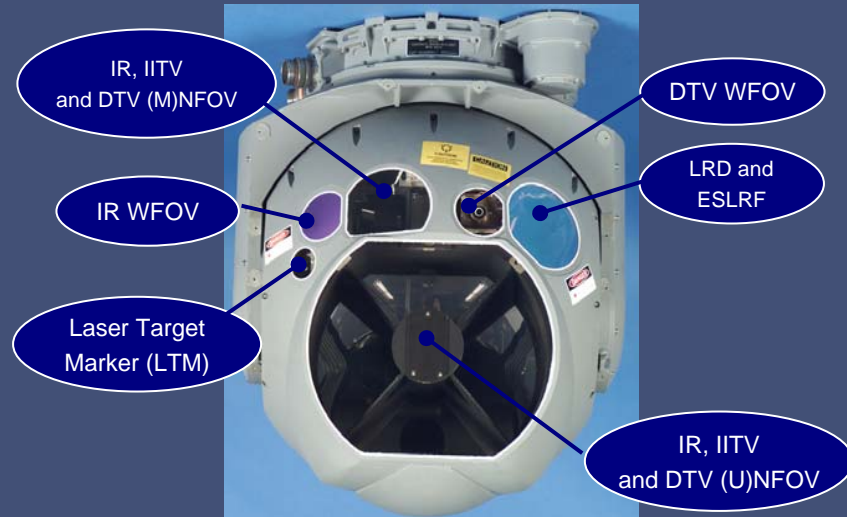
- Optimized maritime command and control displays
- Upgraded display suite/radar operator station
- XM weather, improved flight mapping software
- INMARSAT / SATCOM ARC-210 capability



EO-IR MTS-B



Two Day Light TV
Low Light TV
Infrared
Laser Illuminator
Laser Range
Finder/Designator
480p Resolution/FireWire
Target Auto-track
VisCut Haze Filter



FLIR



FUSED



IITV

Ocean Surveillance Initiative (OSI)



- Auto Detect/Track
- Radar-AIS Correlate
- Increase Sensitivity
- Geo Registration
- 4000+ Targets
- Track History
- Automated Tools
- Associated Imagery

Yellow Dots (RADAR)

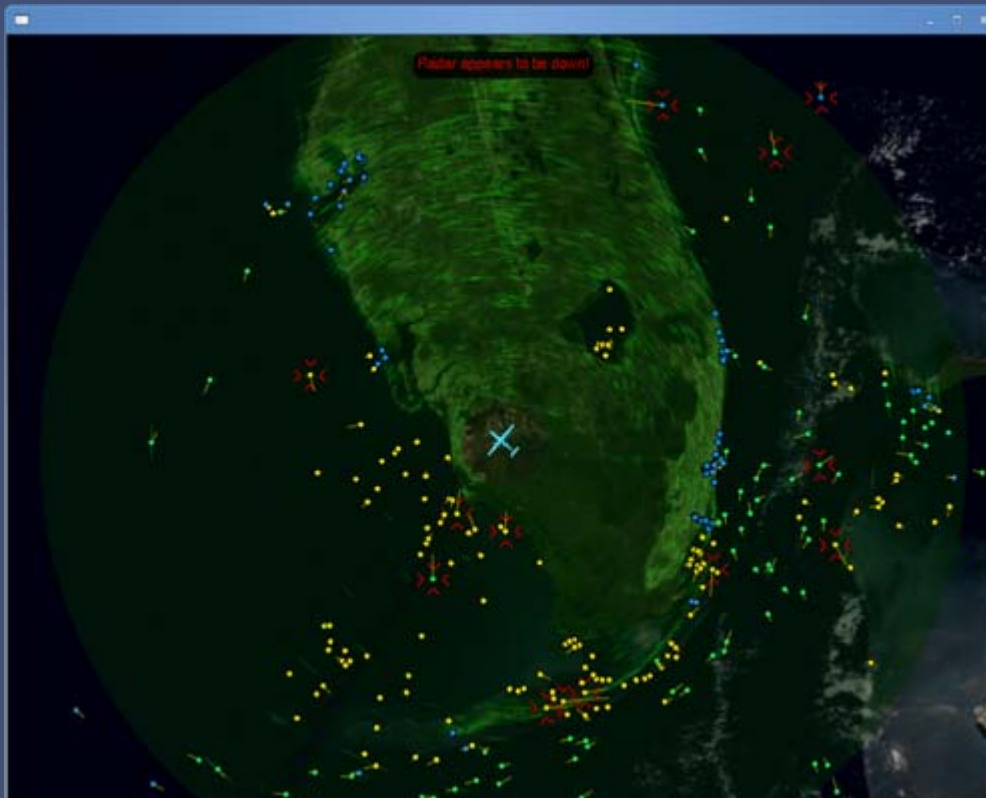
Auto-initiated Radar tracks

Blue Dots (AIS)

AIS-only tracks

Green Dots (FUSED)

AIS/Radar Correlated



OSI - Imagery

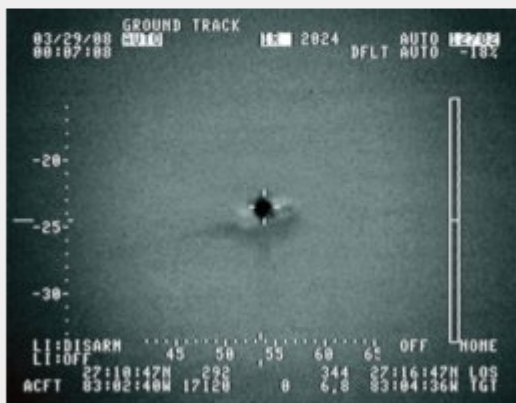


-Auto Slew -Association -Geometry

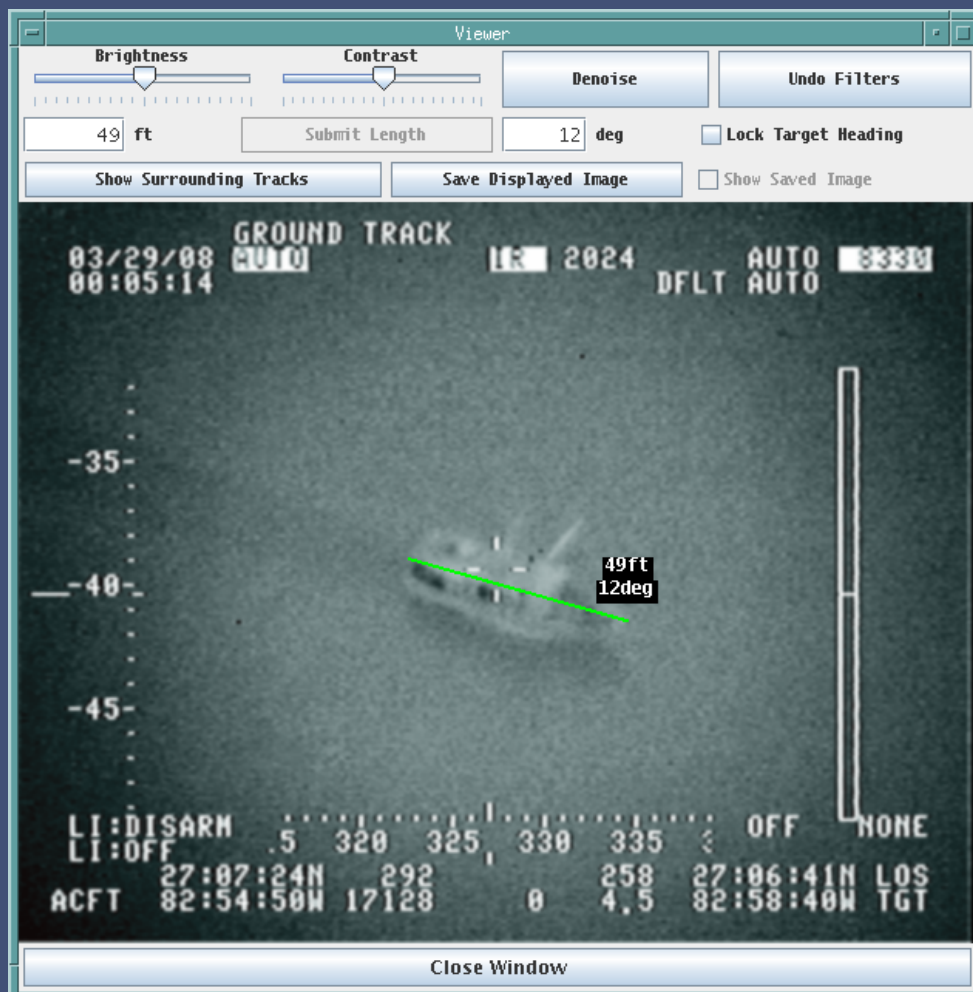
ASTRO Display Controls - 0

Map Radar Tracks Filter Status Imagery AIS

CATEGORY	TIME	SCENE	RANGE	TARGET_ASSOC
IR	05:08:17Z 12/15/2009	10707	10.4nm	1080
IR	05:07:11Z 12/15/2009	10706	10.8nm	1080
IR	05:05:09Z 12/15/2009	10705	7.4nm	495
IR	05:04:25Z 12/15/2009	10704	6.9nm	-
IR	05:03:42Z 12/15/2009	10703	9.1nm	-
IR	05:02:31Z 12/15/2009	10702	4.5nm	-
IR	05:02:25Z 12/15/2009	10701	4.8nm	-



Close



Close Window

Maritime Domain Awareness Vision



UAS Ops Center
Grand Forks ND

- Increased maritime domain awareness
- Domestic / International deployment 2010
- JIATF-South missions
- Integrated Eastern Pacific USCG/CBP Maritime Patrol Operations

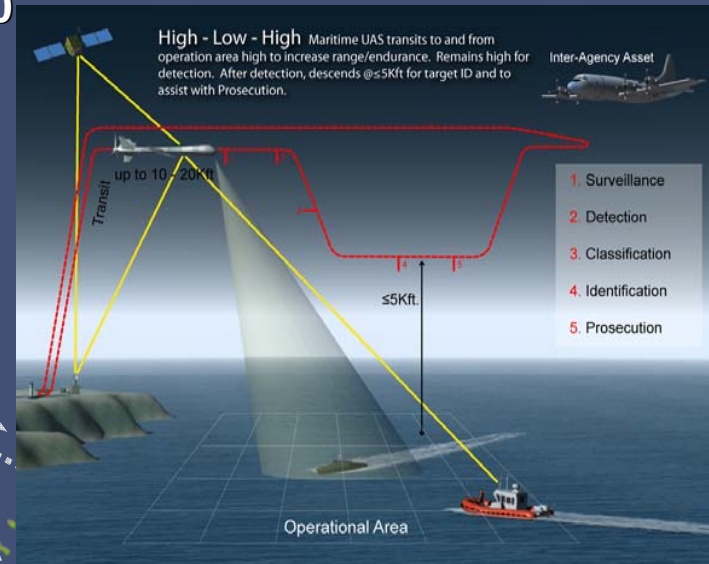
AMOC
Riverside, CA

UAS Ops Center
Sierra Vista, AZ

P3 Ops Center /
UAS Maritime Ops Center
Corpus Christi, TX

P3 Ops Center
Jacksonville, FL

UAS Maritime Ops. Center
Cape Canaveral, FL



CBP 159

Belize

Gitmo

Aguadilla

Curacao & Aruba

El Salvador

Costa Rica

Panama City

● UAS

● P3

● P3/UAS

★ UAS Ku Band Mission Control Facility Existing/Planned

Persistent Maritime Surveillance Customs & Border Protection / US Coast Guard UAS Joint Program Office



Guardian

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Presented at
IDGA MHLS Summit 2010 Miami



U.S. Customs and
Border Protection

Maritime Domain Awareness