

CBP / USCG UAS Joint Program Office

Guardian UAS

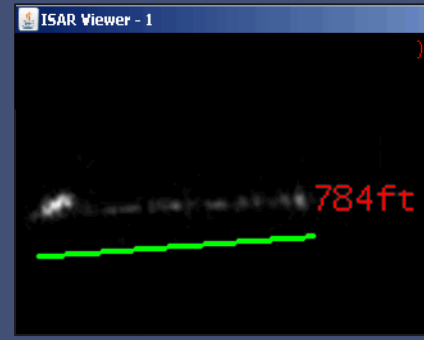
Persistent Maritime Surveillance



Surveillance and Detection



Classification



Identification



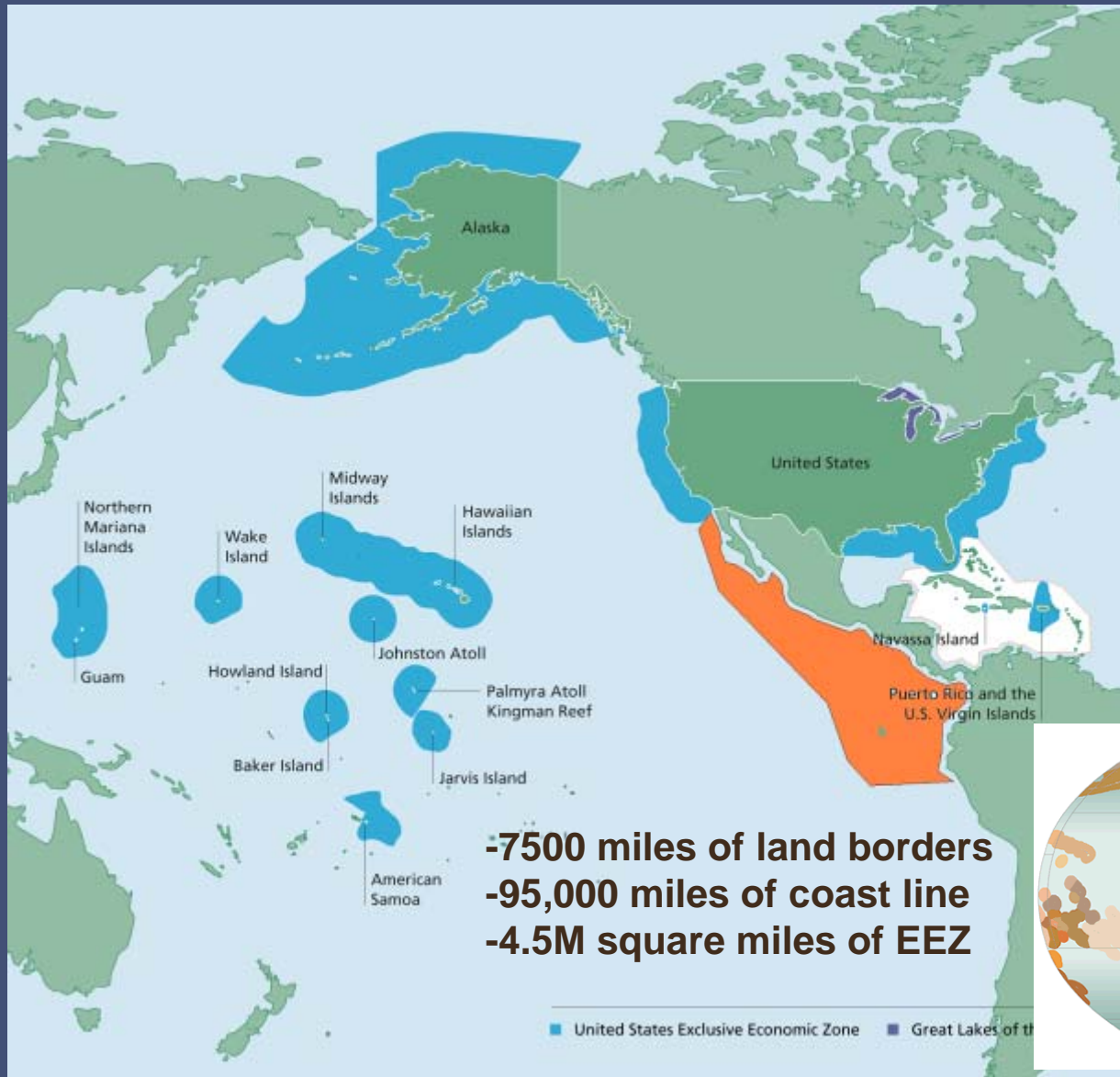
Increased Prosecutions



U.S. Customs and
Border Protection



U.S – A Maritime Nation

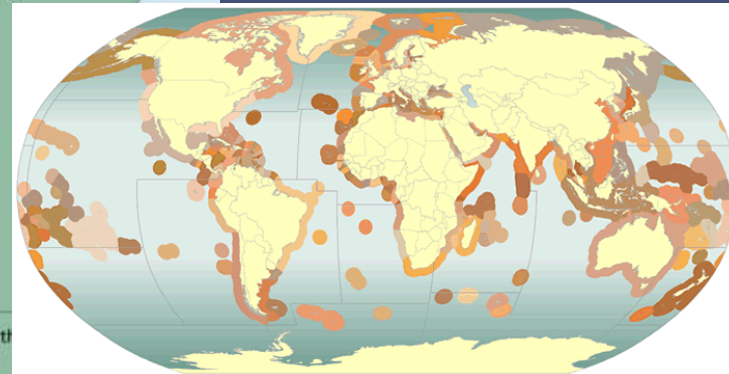


How big is the U.S. EEZ?

The U.S. Exclusive Economic Zone, at 4,453,068 square miles, is nearly one and one-half the size of the landmass of the lower 48 states.



-7500 miles of land borders
-95,000 miles of coast line
-4.5M square miles of EEZ



USCG Overall CONOPS

Predator B

National Strategic Asset



18,000 feet (Positive Control Airspace)

- Wide Area Surveillance to support Maritime Domain Awareness.
- Scheduled missions.
- 12- 24 hour endurance.

Fire Scout

Cutter-Based Tactical Asset

8,000 feet



- Threat ID to support end-game interdiction.
- Real-time / On-demand missions.
- 5-7 hour endurance.



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!

Southwest Border Predator Operations



- SW Border Hub for training, test, and operations
- Three Predator B's and two Ground Control Stations on site
- New hangar and flight operations center-2009



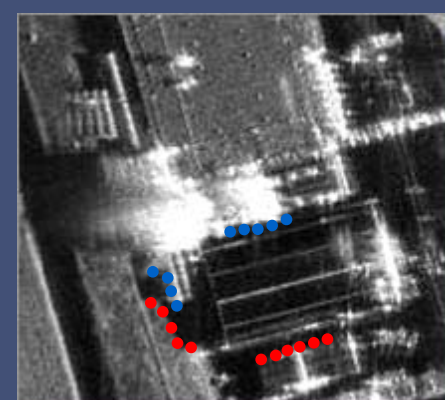
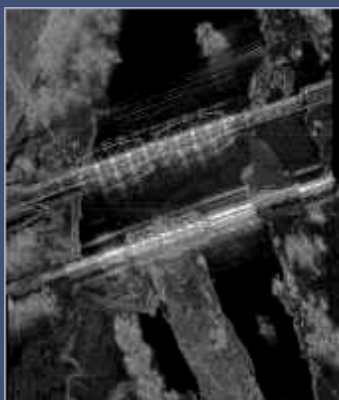
UAS Technology Countering Emergent Ultralight Threat!

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



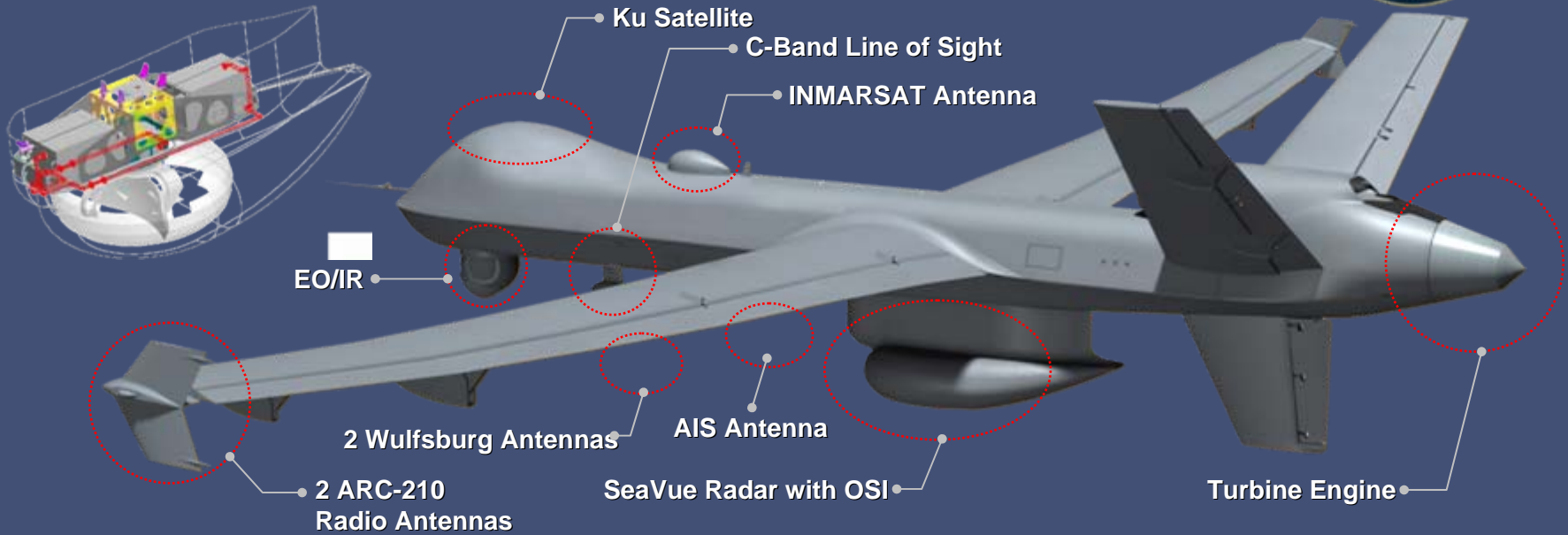
"The Guardian"

- Joint Program Office to develop Maritime Variant Predator
- Program Managed by CBP and USCG team
- USCG Pilot training in ND - 5 pilots
- Planned operations focus on Transit Zone Maritime Domain Awareness



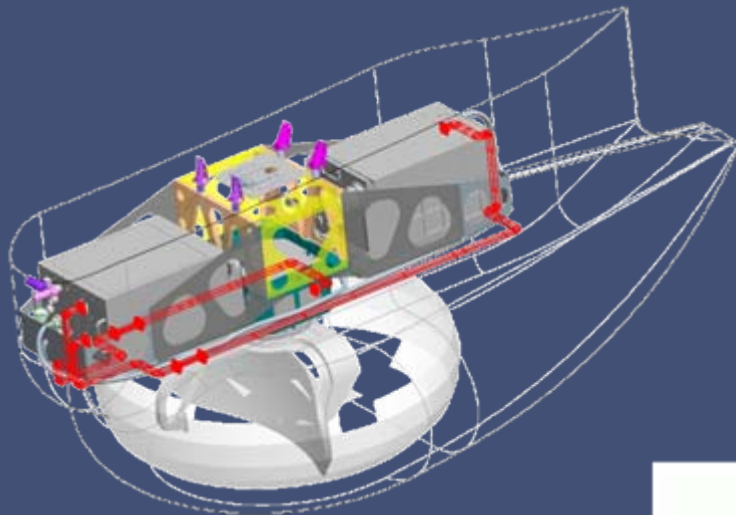
The Guardian

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

Sensors – SeaVue XMC Radar



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



UAS Operational Concept



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)

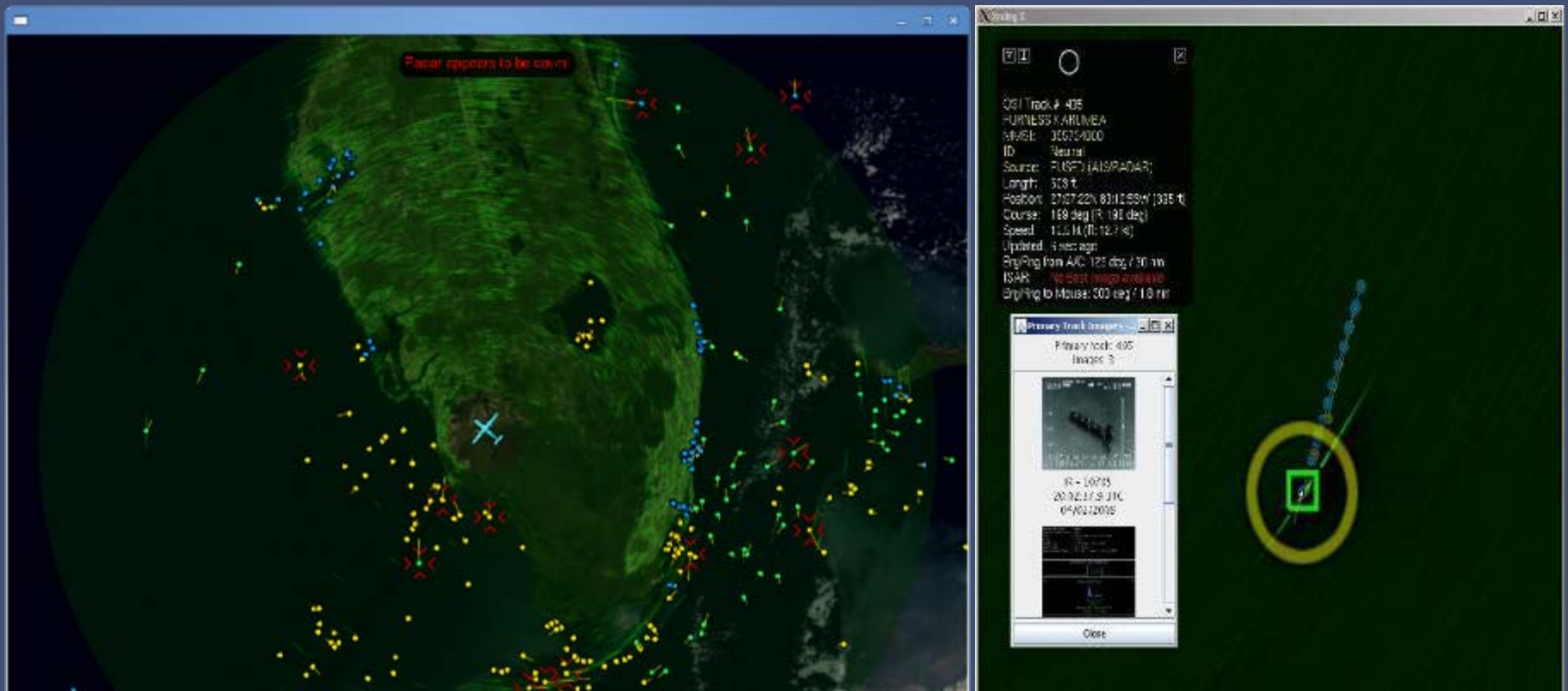
Auto-initiated Radar tracks

Blue Dots (AIS)

AIS-only tracks

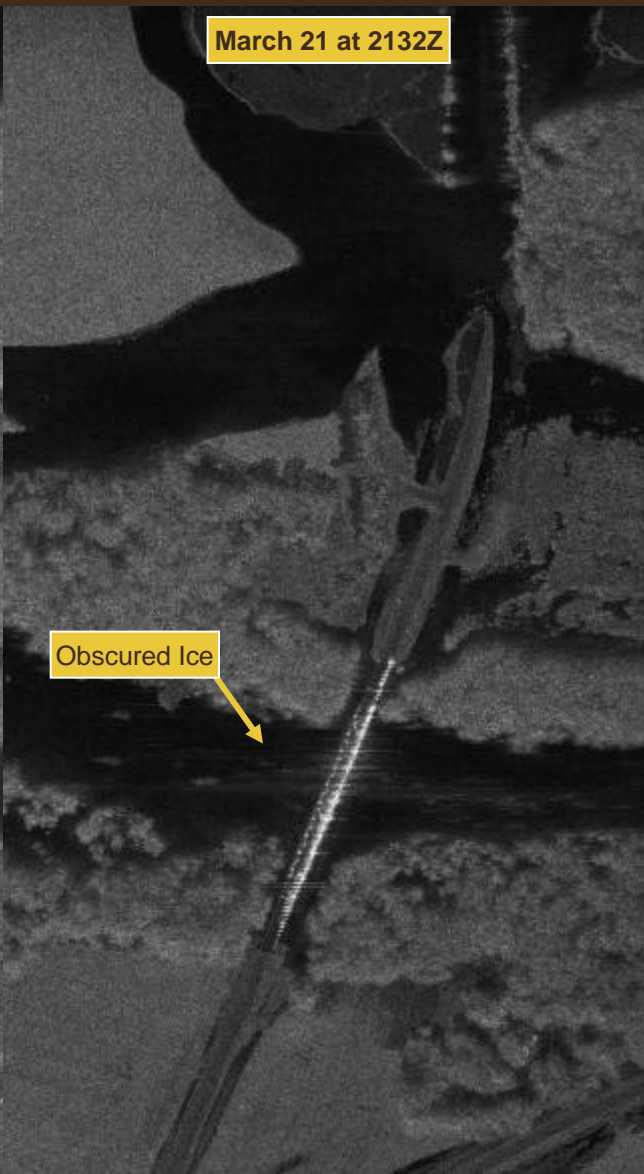
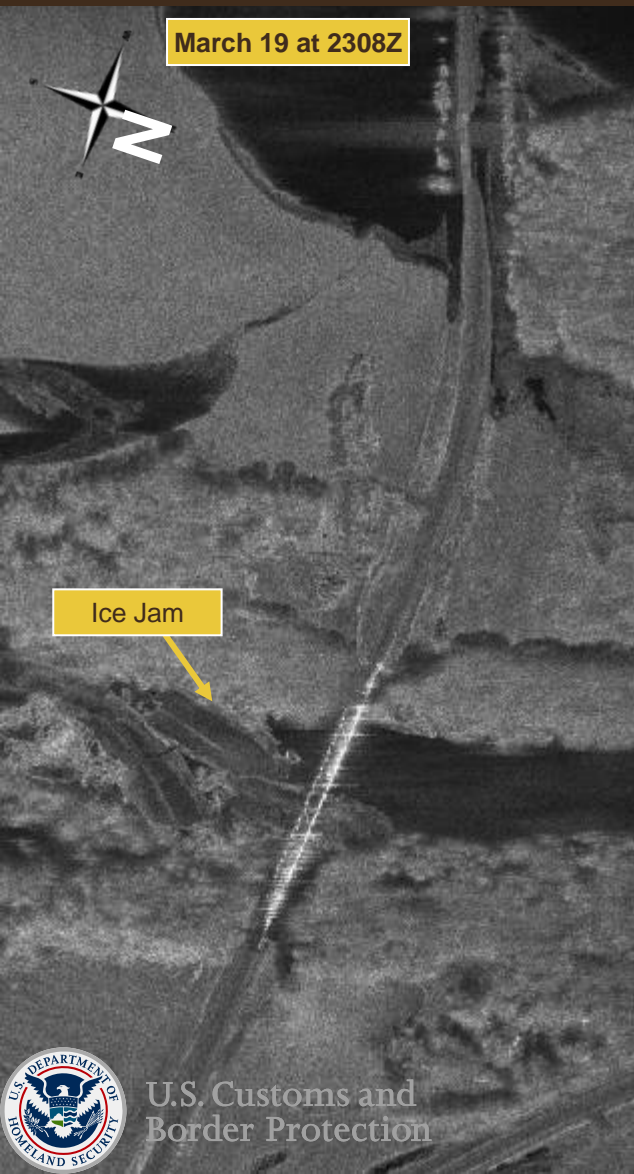
Green Dots (FUSED)

AIS/Radar Correlated





OPERATION: Flood Watch 2010
TARGET: 6th Ave bridge NE
SNSR/RES: Lynx SAR/ 12" Spot
LAT/LON: 47° 35' 47.5" N / 96° 56' 19.1' W
TOT: 19 Mar 2010/ 2308Z - 21 Mar 2010/ 2123Z

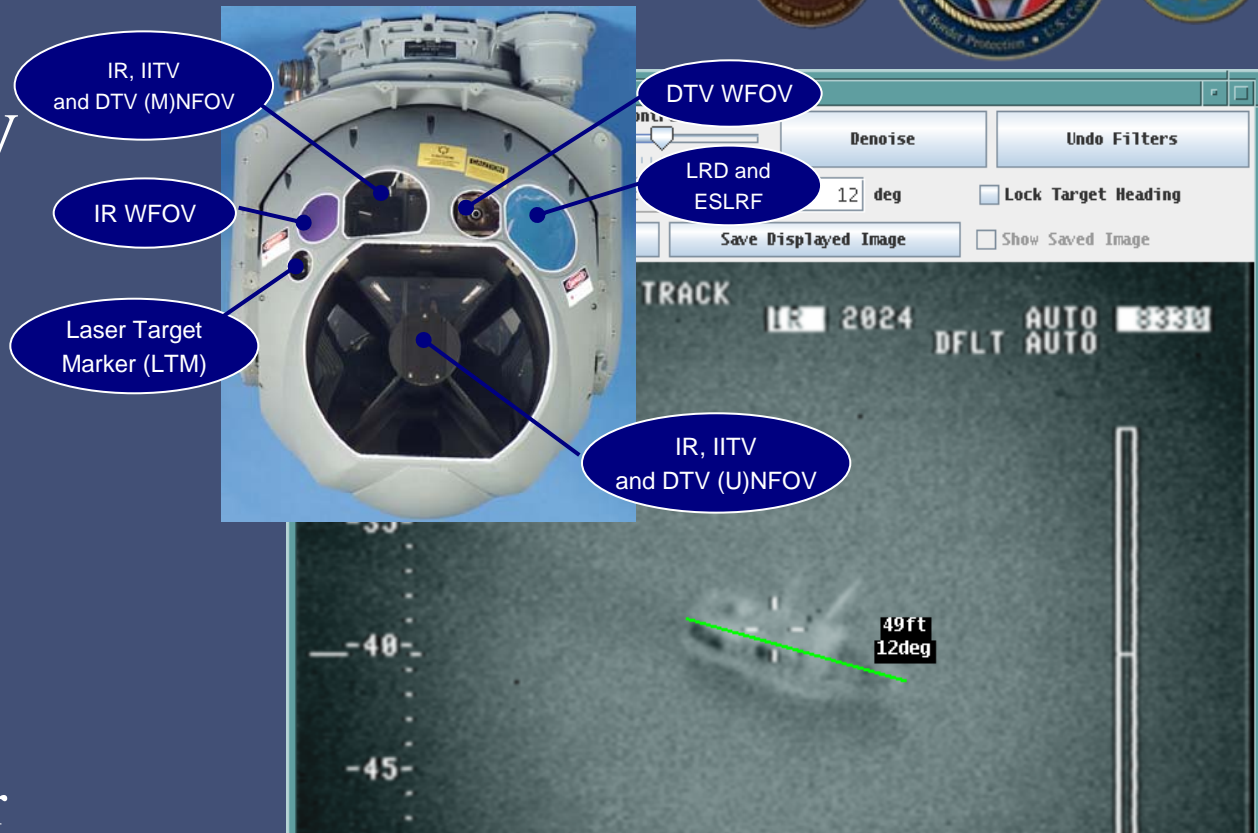


U.S. Customs and
Border Protection

EO-IR MTS-B



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



FLIR

FUSED

IITV

DATA NETWORKING



KU SATELLITE

IRIDIUM SATELLITE

NASOC - GF
FLIGHT OPERATIONS CTR.
GRAND FORKS . ND

NATIONAL DATA CTR.
(NDC)

AMOC
RIVERSIDE . CA

NASOC - SV
SIERRA VISTA . AZ

NASOC - CC
CORPUS CHRISTI . TX

NASOC - CB
CAPE CANAVERAL . FL

DISTRICT 7
MIAMI . FL

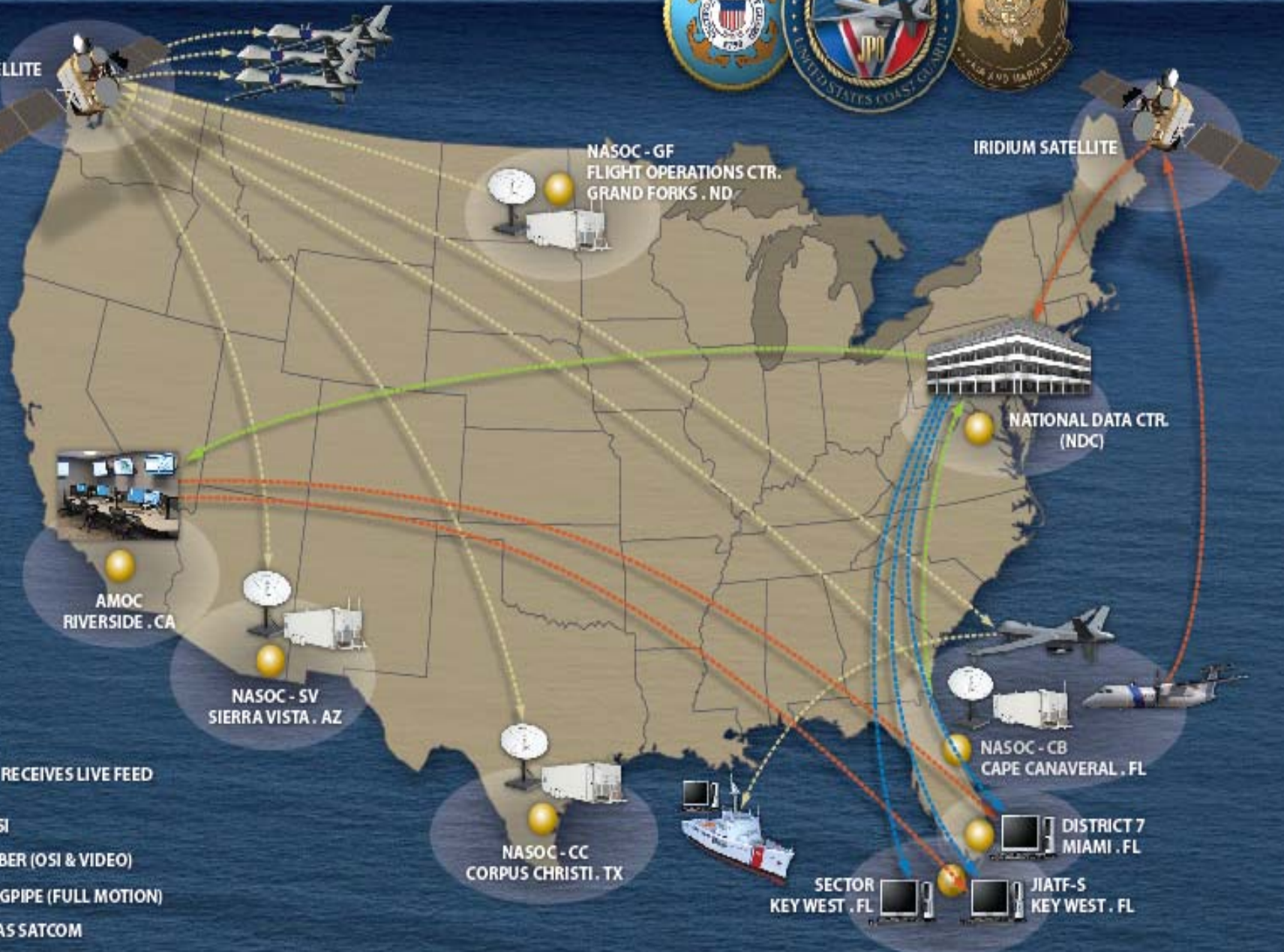
SECTOR
KEY WEST . FL

JIATF-S
KEY WEST . FL



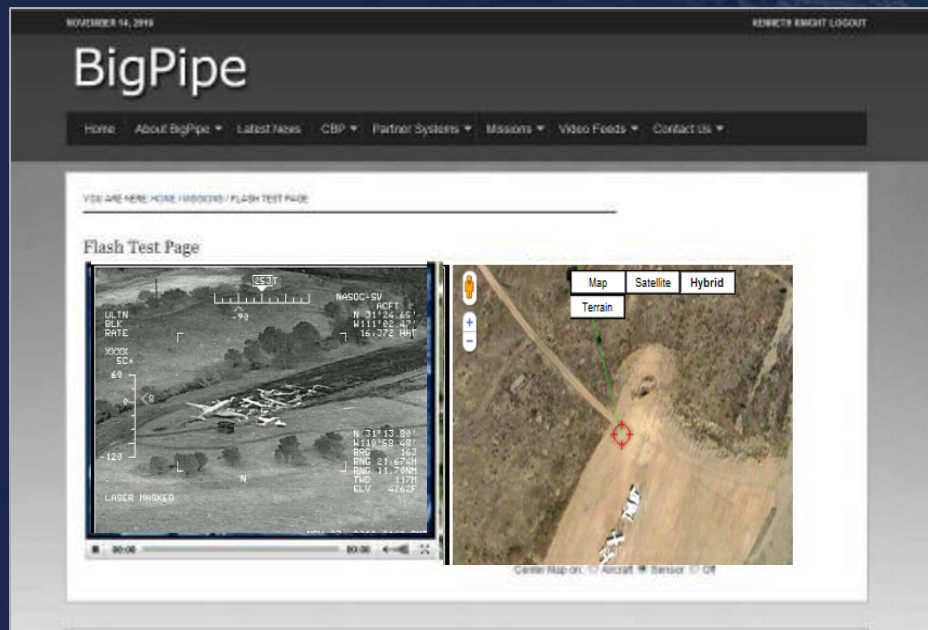
RECEIVES LIVE FEED

- OSI
- FIBER (OSI & VIDEO)
- BIGPIPE (FULL MOTION)
- UAS SATCOM

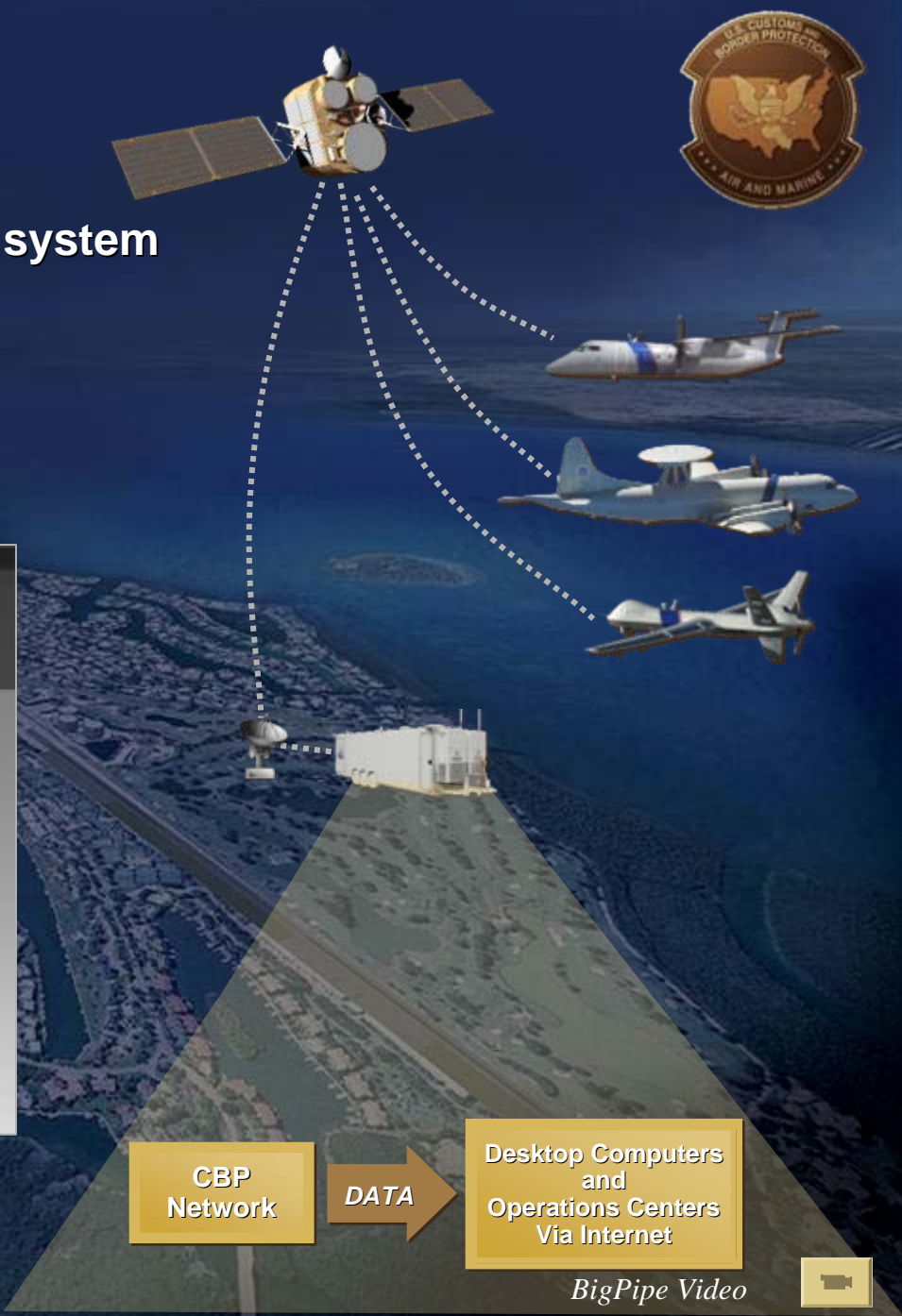


Big Pipe Video Operations

- Web based real time data distribution system
- Streaming high resolution FMV
- 250+ simultaneous users
- Predator, Guardian, DHC-8, P-3 feeds



U.S. Customs and
Border Protection



Air and Marine Operations Center (AMOC)

Riverside, CA

- Ingest SeaVue Radar and AIS feeds
- FAA, DoD, Canadian and Aerostat radar feeds
- Integrated Enforcement data bases/communications networks
- Production, Exploitation and Dissemination (PED) Cell added - 2010



Air Operations Floor



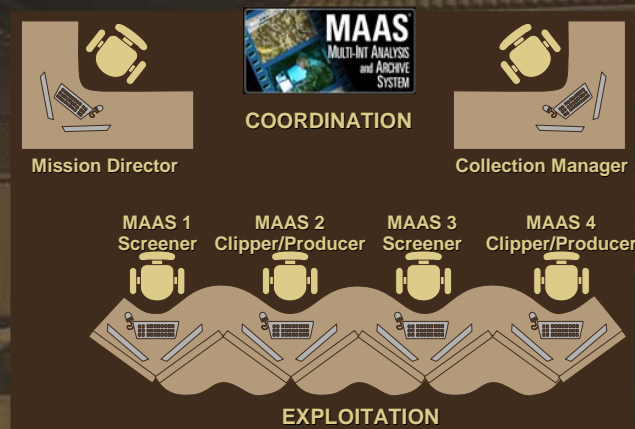
Fused Radar Domain Awareness



Aerostat



Predator Exploitation

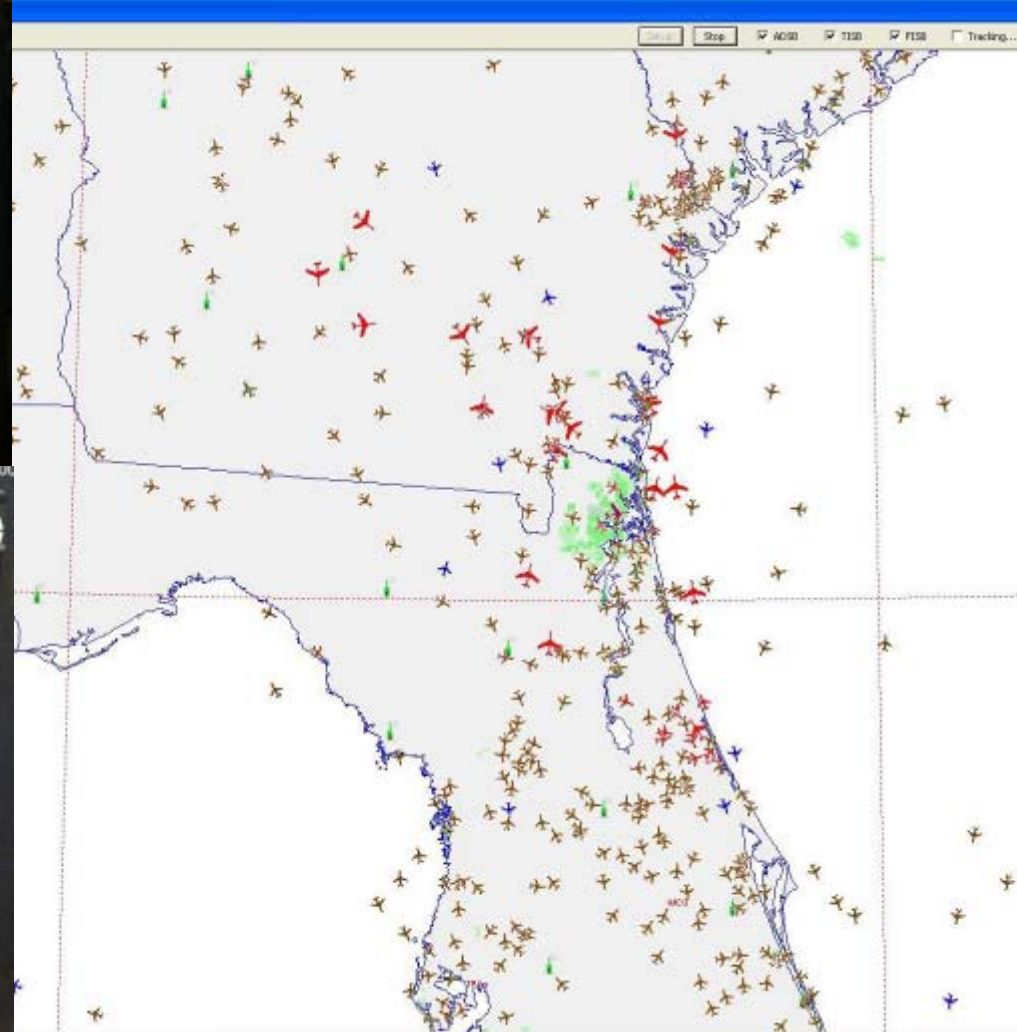


PED Cell



U.S. Customs and
Border Protection

UAS ADS-B In via TIS-B via Internet



Maritime Domain Awareness Vision



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

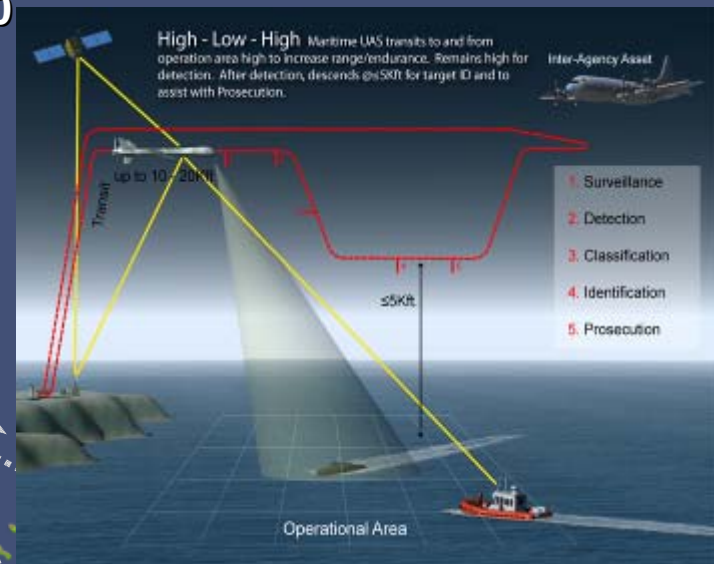
AMOC
Riverside, CA

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

Mr. Doug Koupash
JPO Director

CAPT Jim Sommer
JPO Deputy Director
James.Sommer@dhs.gov



U.S. Customs and
Border Protection

Maritime Domain Awareness