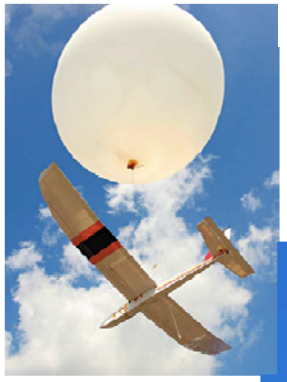
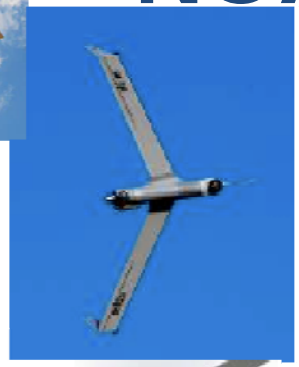
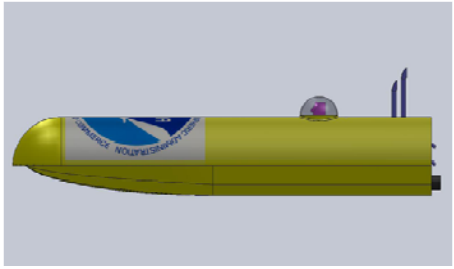
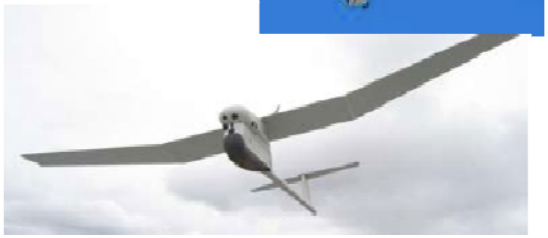
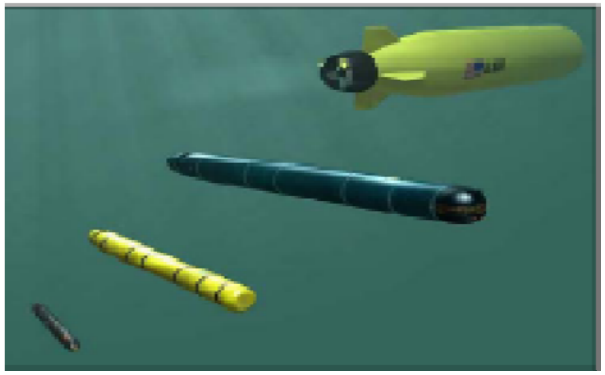


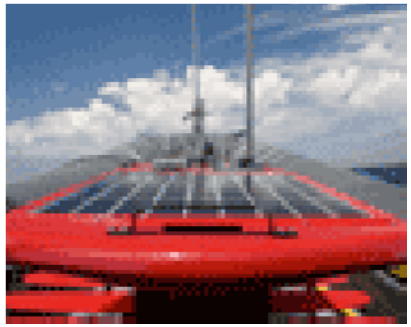
NOAA Unmanned Systems Engineering & UAS Operations





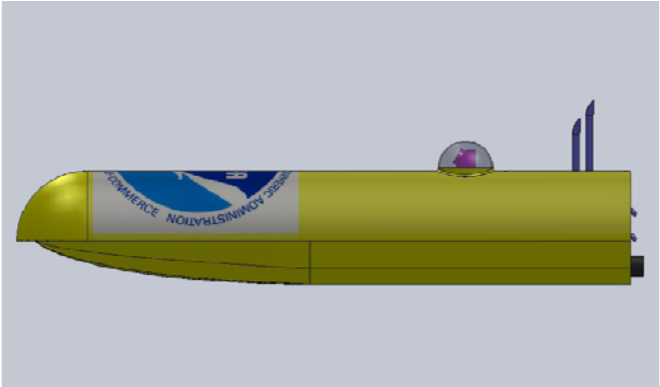






Purpose and Outline

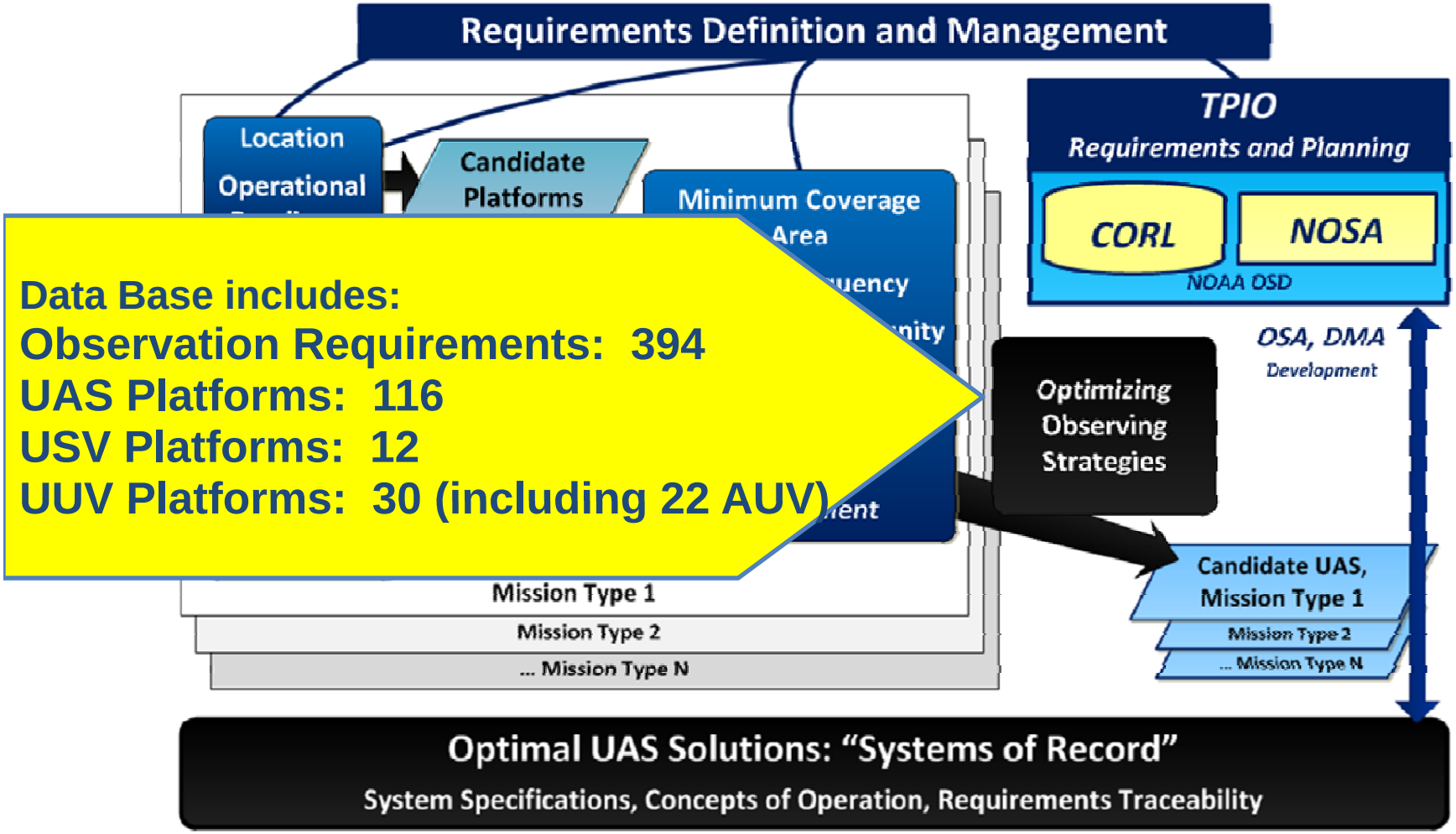
- Unmanned Systems Engineering
- River Forecasting Center UAS Workshop
- Unmanned Systems Transition Process… Concept > Prototype>Operations



Systems Engineering Process

Technology, Planning, Integration for Observation

Consolidated Observation Requirements List & NOAA Observing System Architecture



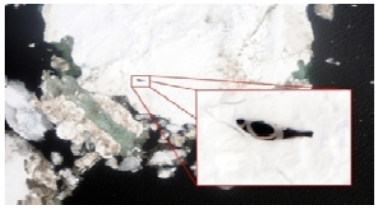
Data Base includes:
Observation Requirements: 394
UAS Platforms: 116
USV Platforms: 12
UUV Platforms: 30 (including 22 AUV)

River Forecasting Center Workshop

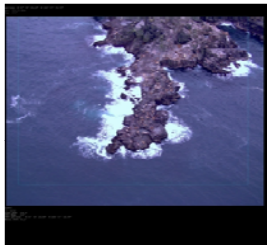
- In conjunction with the North Gulf Institute
- Get a better understanding of RFC observation requirements and areas of interest.
- Get a better understanding of RFC current capabilities and unmanned missions flown.
- Get a better understanding of current unmanned platforms, sensors and operators including those used by NOAA and other government agencies.
- Construct the foundation for an unmanned systems strategy for the RFC.

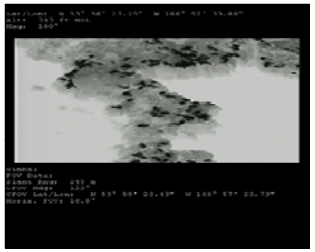
NOAA UAS Operations

NOAA UAS ship-deployed study of ice seals in Bering Sea



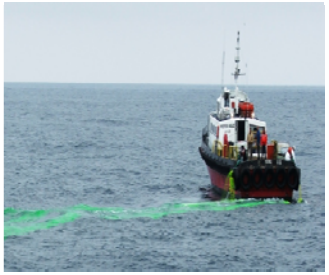
University of Alaska - Fairbanks UAS partnership study of seals at Dutch Harbor



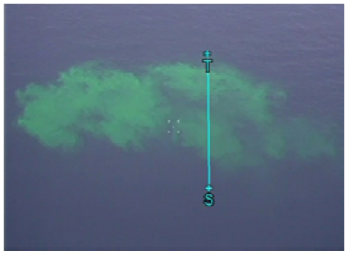


Arctic Operations Preparation Mission

2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015



Coast Guard UAS partnership study of oil spill monitoring in Santa Barbara channel



Atmospheric Rivers Boundary-Layer Scripps/SNI Deployment

Puma AE Acquisition
June 2012

- The NOAA is currently in the process of procuring 2 Puma AE UAS through the Army PM UAS. Each UAS will include 3 aircraft and 2 GCS.
- The Puma AE is built by AeroVironment.
- The Puma AE is waterproof and can land in water making it compatible with ship launch and recovery.
- Gimbaled payload, 360 degree continuous pan, +10 to -90 degrees tilt, stabilized EO, IR camera, and IR Illuminator all in one modular payload.
- The Puma AE capabilities are summarized in the Table below:

Parameter	Value
Payload	2 lb
Endurance	2 hours
Cruise Speed	20-45 knots
LOS Range	8 nm
Ceiling	500 ft
Launch/Recovery	Hand/Deep Stall

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