



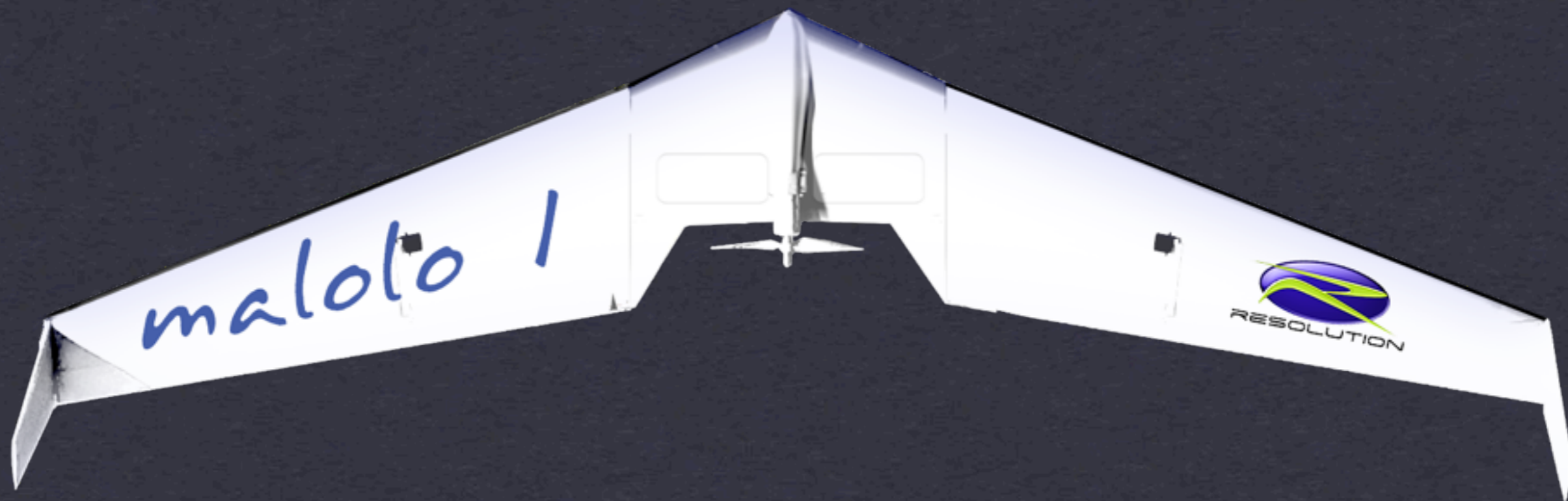
# Unmanned Aircraft System

Airborne Technologies, Inc.

Tim Veenstra



R e s o l u t i o n U A S







R e s o l u t i o n   U A S

## ***UAS OVERVIEW***

- ✦ *5kg with 2m wingspan*
- ✦ *Marinized (Waterproof)*
- ✦ *Electric motor*
- ✦ *1.5 hr endurance*
- ✦ *Inexpensive components*





# Overview of ATI



## \* Company

- ▶ ATI is a successful, profitable Alaskan small business
- ▶ History of aviation and ocean remote sensing
- ▶ Over 900 ocean buoys sold in past 5 years
- ▶ High expertise in software design & programming, small UA airframe design, remote sensing systems building and integration



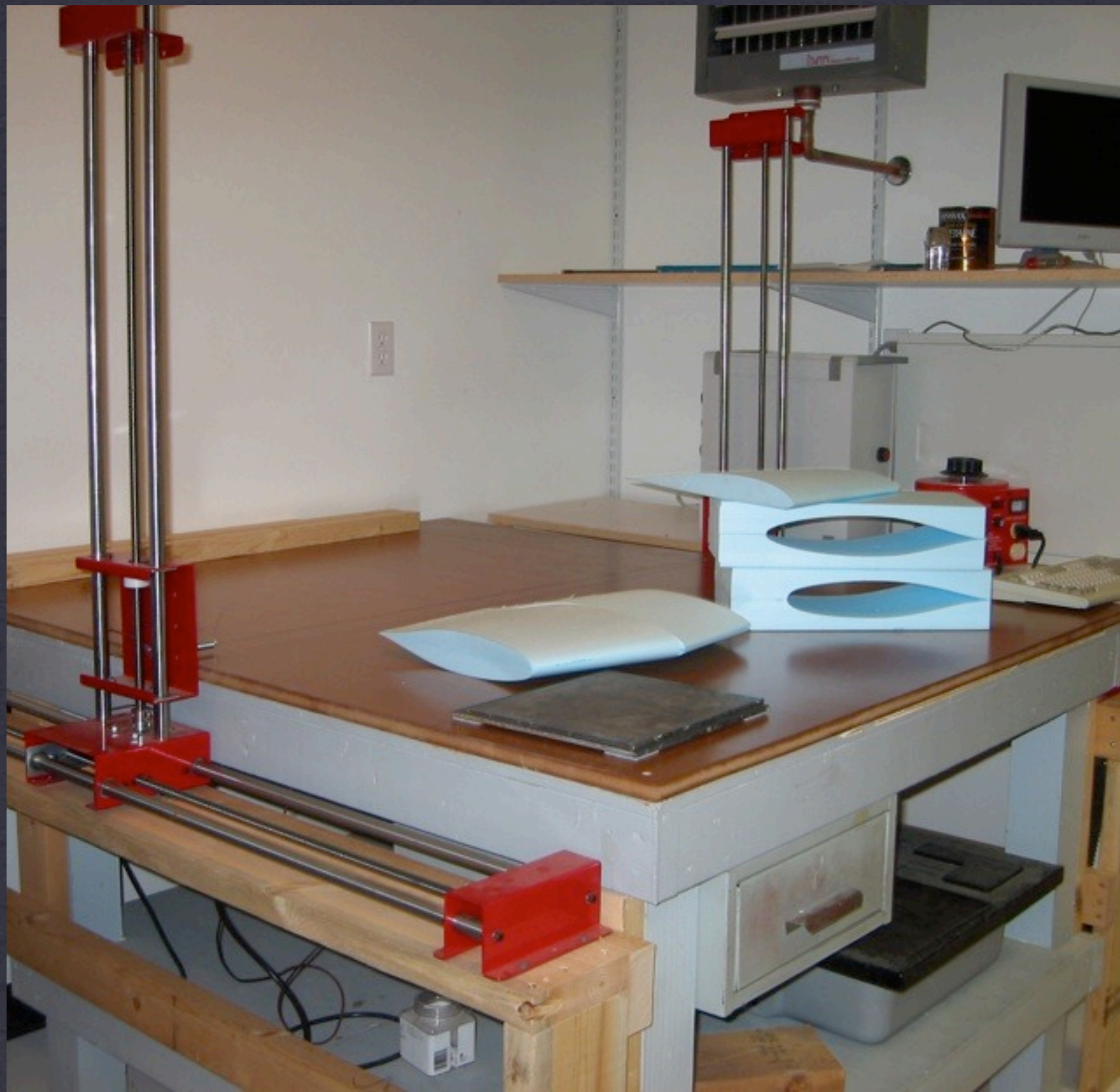
# ATI Facility & Equipment



- ✱ Incorporated 1999  
- Wasilla, AK
- ✱ Private runway w/  
lake frontage
- ✱ 6500 sq. ft facility  
with office and  
shop space
- ✱ Fully equipped  
electronics lab and  
R&D shop





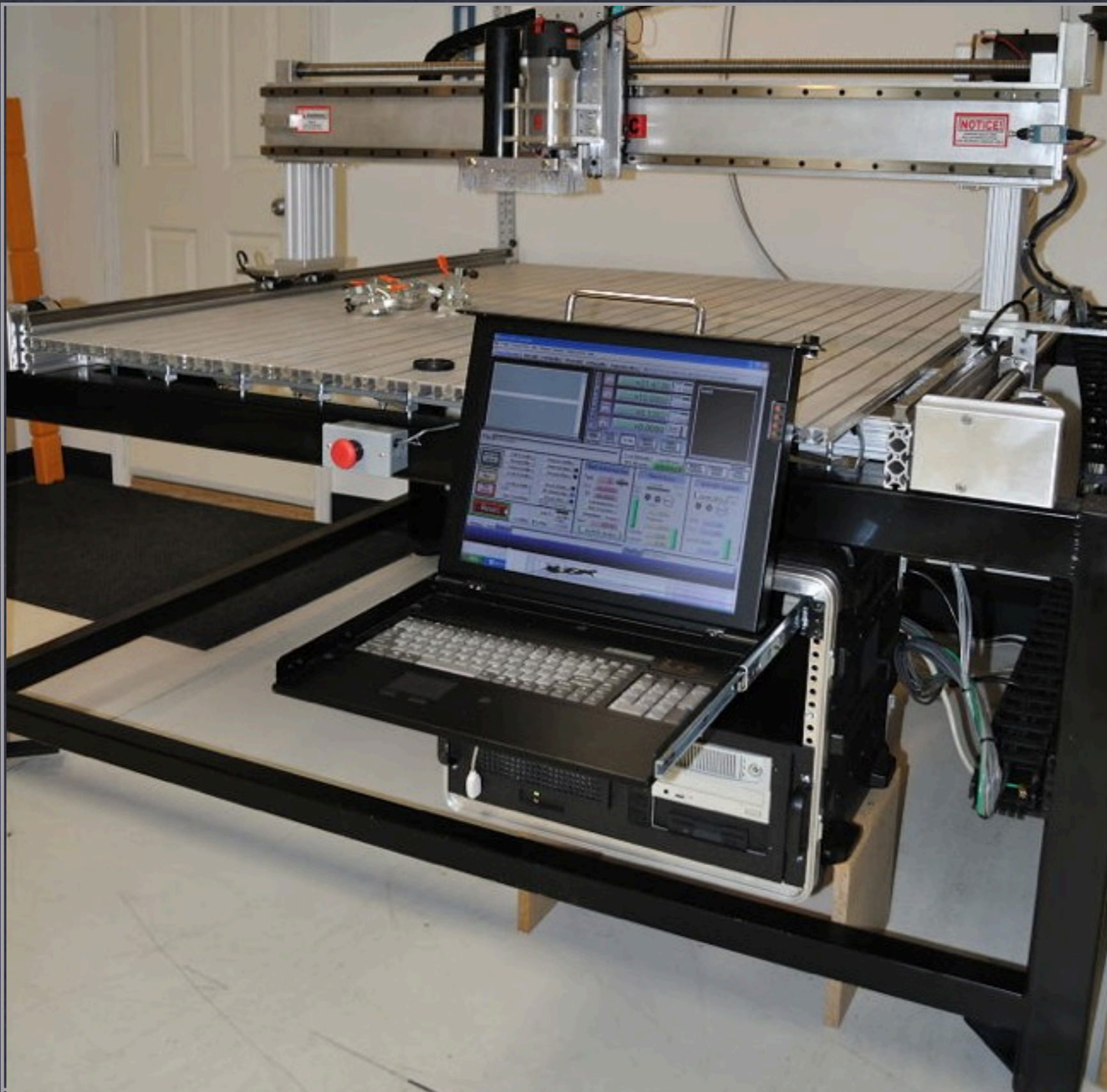


# ATI FACILITY AND EQUIPMENT

## CNC FOAM CUTTING MACHINE







# ATI FACILITY AND EQUIPMENT

## CNC ROUTER MACHINE





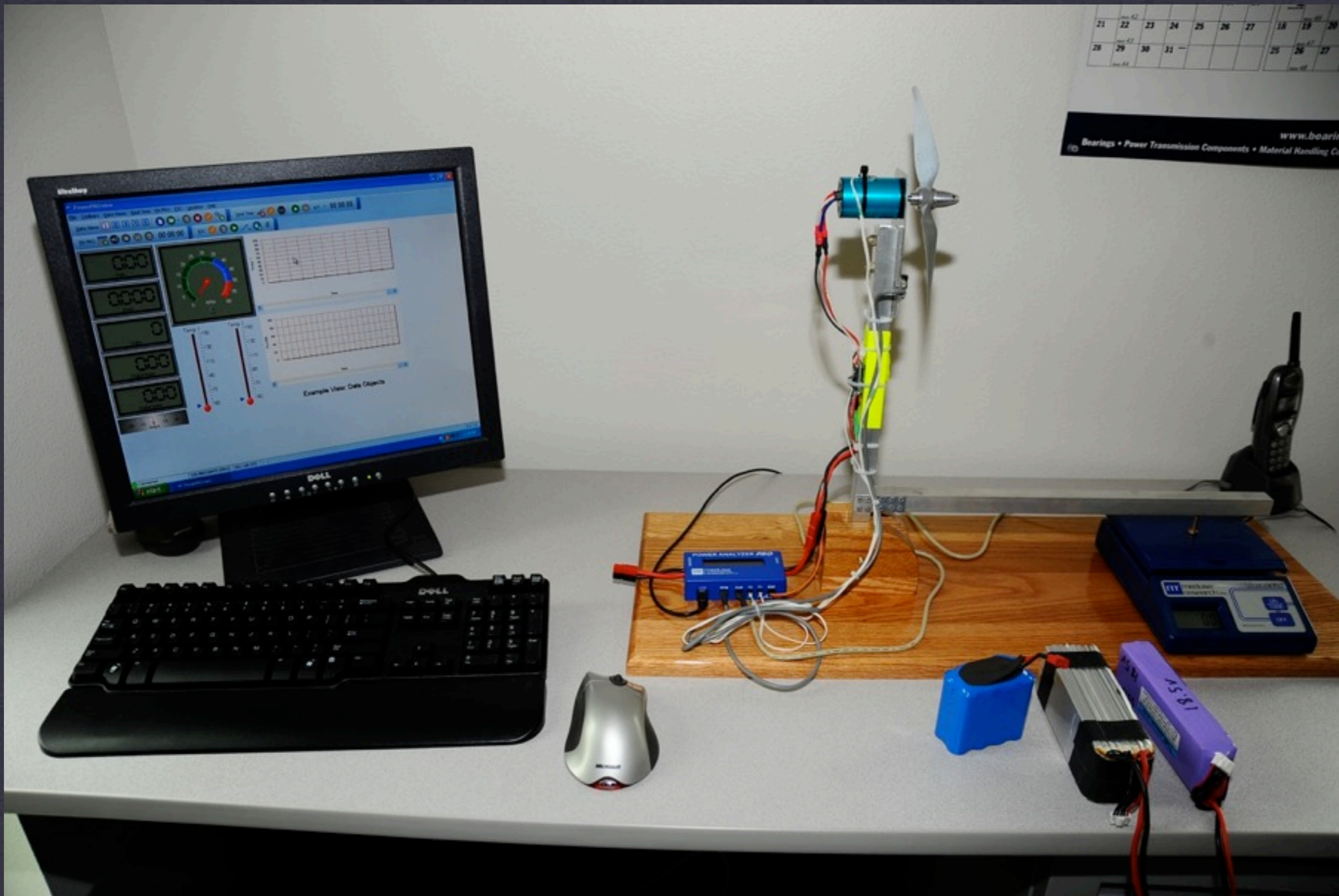


# ATI FACILITY AND EQUIPMENT

## AIRFRAME MANUFACTURING CAPABILITIES







# ATI FACILITY AND EQUIPMENT

## PROPULSION SYSTEMS TEST STAND





# NOAA SBIR PHASE I & II

## Autonomous Vessel-launched Airborne Anomaly Detection and Reporting System





## SBIR AWARD

# Develop an Unmanned Aircraft System System Requirements

- CAPABLE OF OPERATION FROM VESSEL 30' OR LARGER
- AUTONOMOUS WITH ROUTING CAPABILITIES
- DEPLOY A SATELLITE MARKER BUOY
- UTILIZE A POTENTIAL VARIETY OF SENSORS
- AUTOMATICALLY DETECT OBJECTS/SEA-LIFE IN OCEAN
- TELEMETRY BACK DATA TO VESSEL
- MINIMUM OF 1.5 HOURS FLIGHT
- EASILY RECOVERED AND QUICK TURN-AROUND
- LOW COST





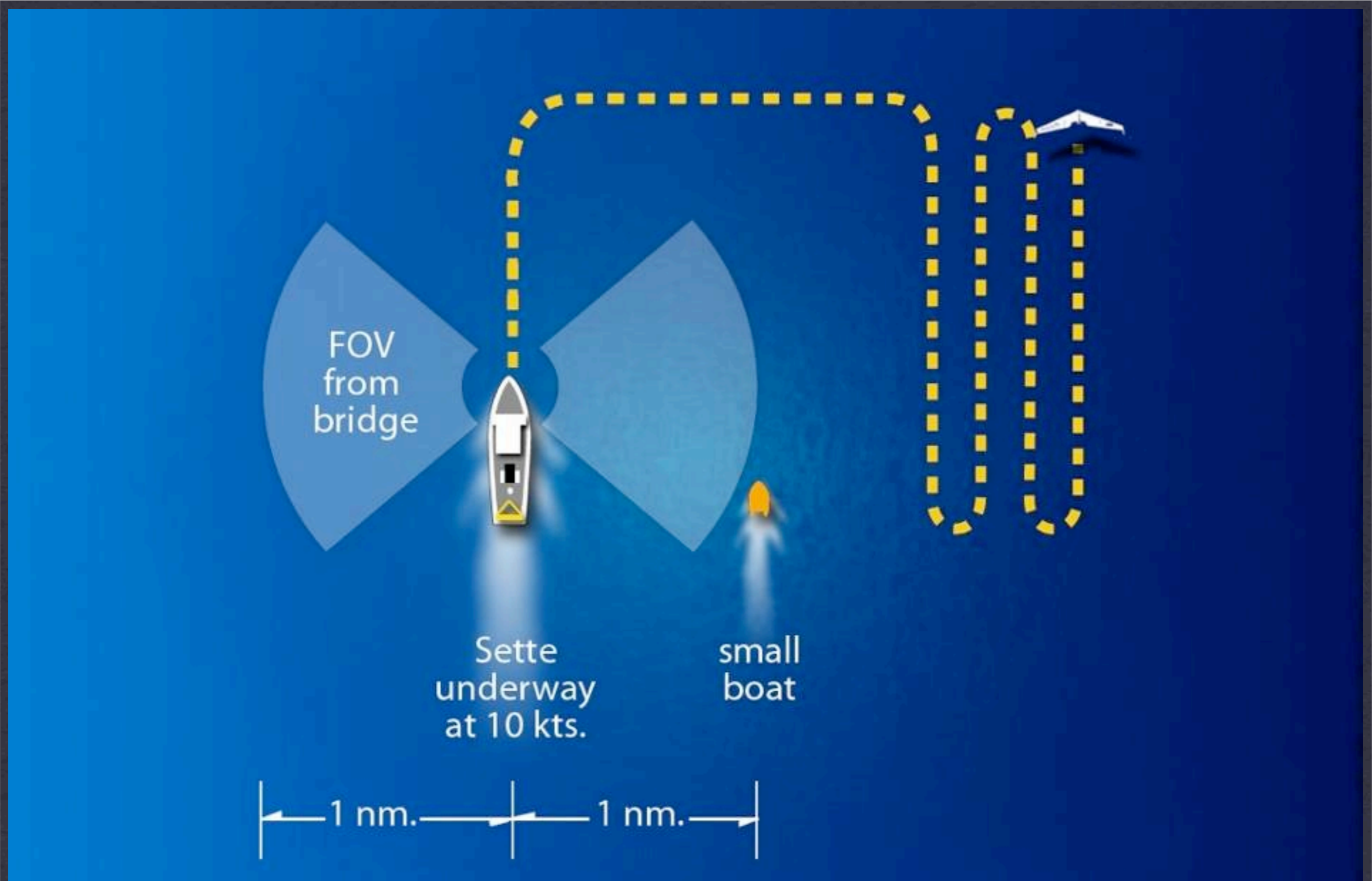
## SBIR AWARD

# Develop an Unmanned Aircraft System NOAA Applications

- ASSIST IN LOCATING MARINE DEBRIS AT SEA
- PERFORM MARINE MAMMAL SURVEYS
- ASSIST IN HURRICANE CLEAN-UP
- VALIDATE SATELLITE SENSOR DATA
- **ATMOSPHERIC DATA COLLECTION**
- **ASSESS FLOOD EXTENT AND DAMAGE**
- **???**







# MARINE DEBRIS IDENTIFICATION & TRACKING

SBIR PHASE I & II





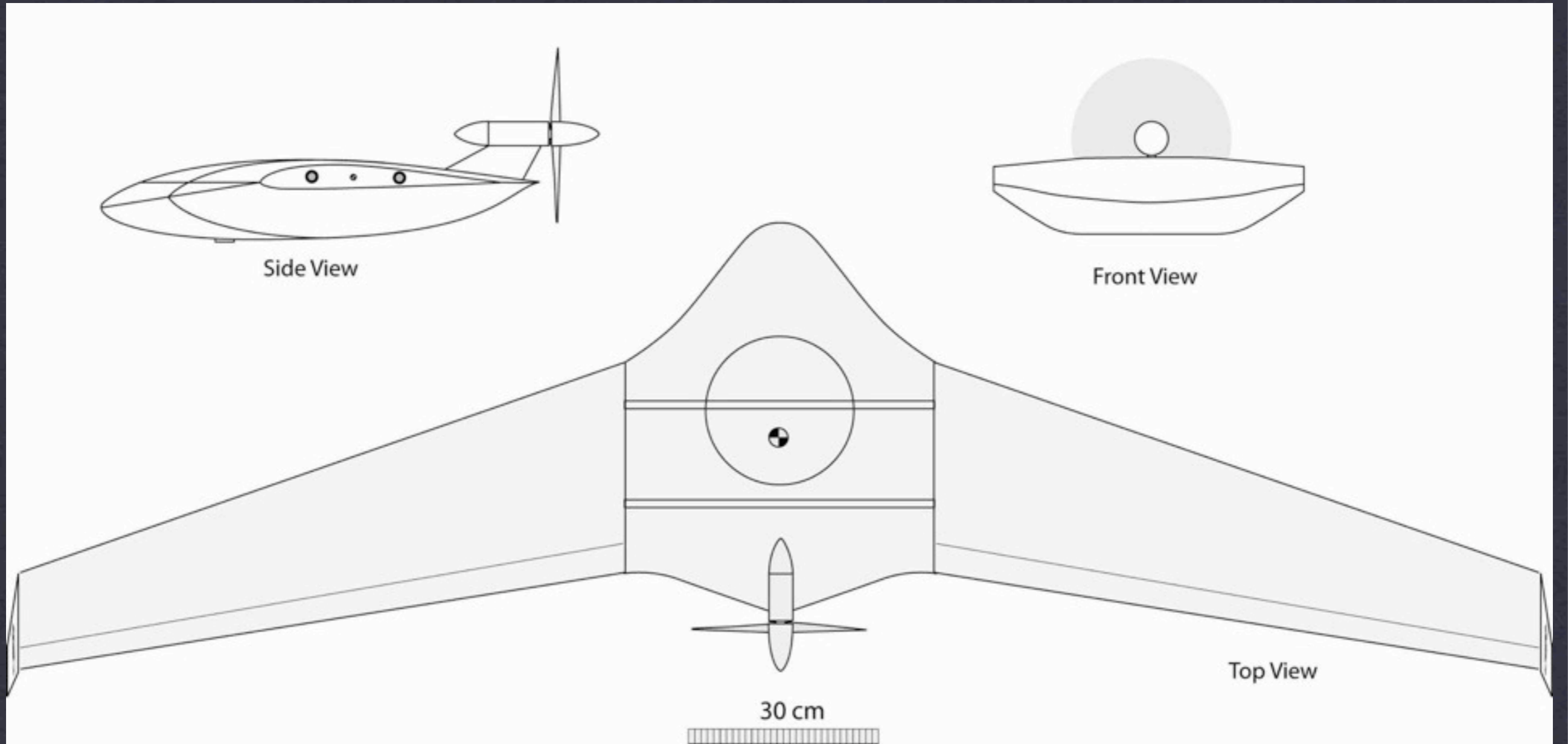


# MARINE DEBRIS IDENTIFICATION & TRACKING

SBIR PHASE I & II







PROJECT

# RESOLUTION UAS

## AIRFRAME DEVELOPMENT



DATE

FALL 2008

CLIENT

NOAA SBIR PHASE I



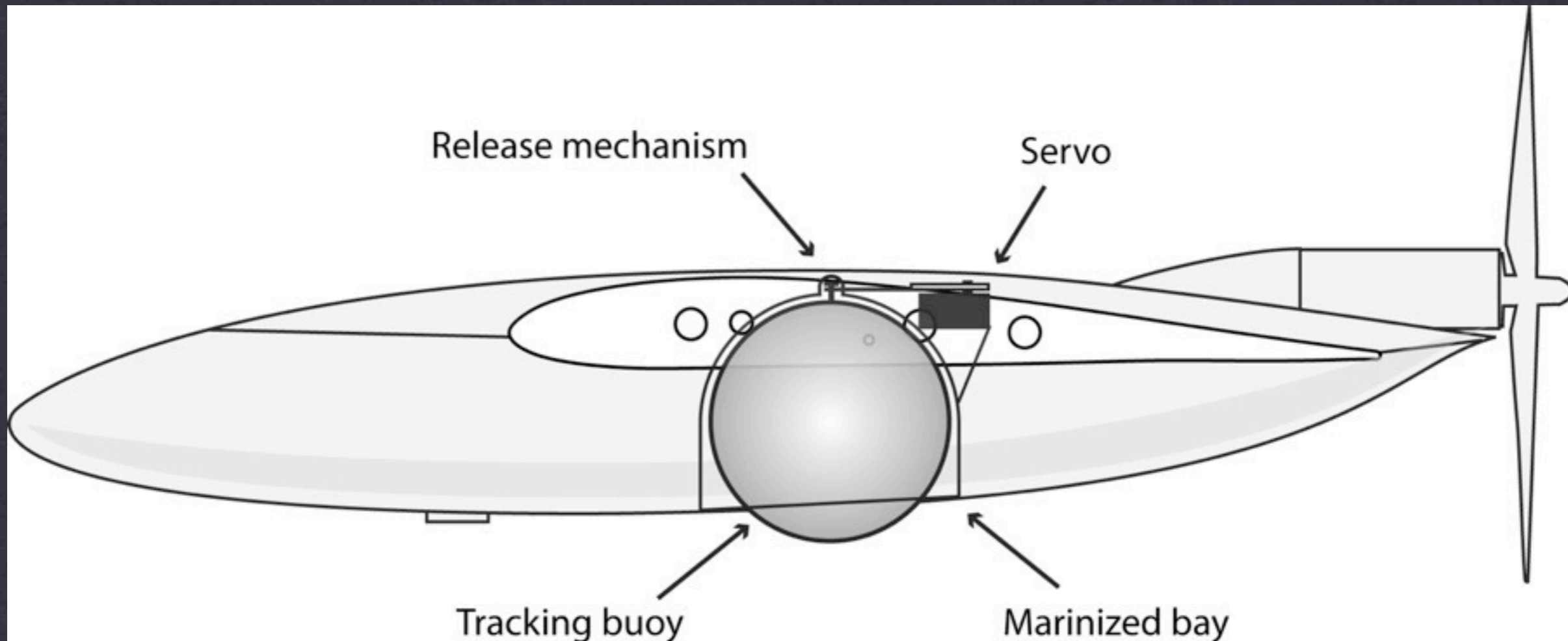


# SBIR PHASE I PROTOTYPE

AIRBORNE TECHNOLOGIES, INC.







PROJECT

# RESOLUTION UAS

## CUT-AWAY VIEW OF BUOY BAY



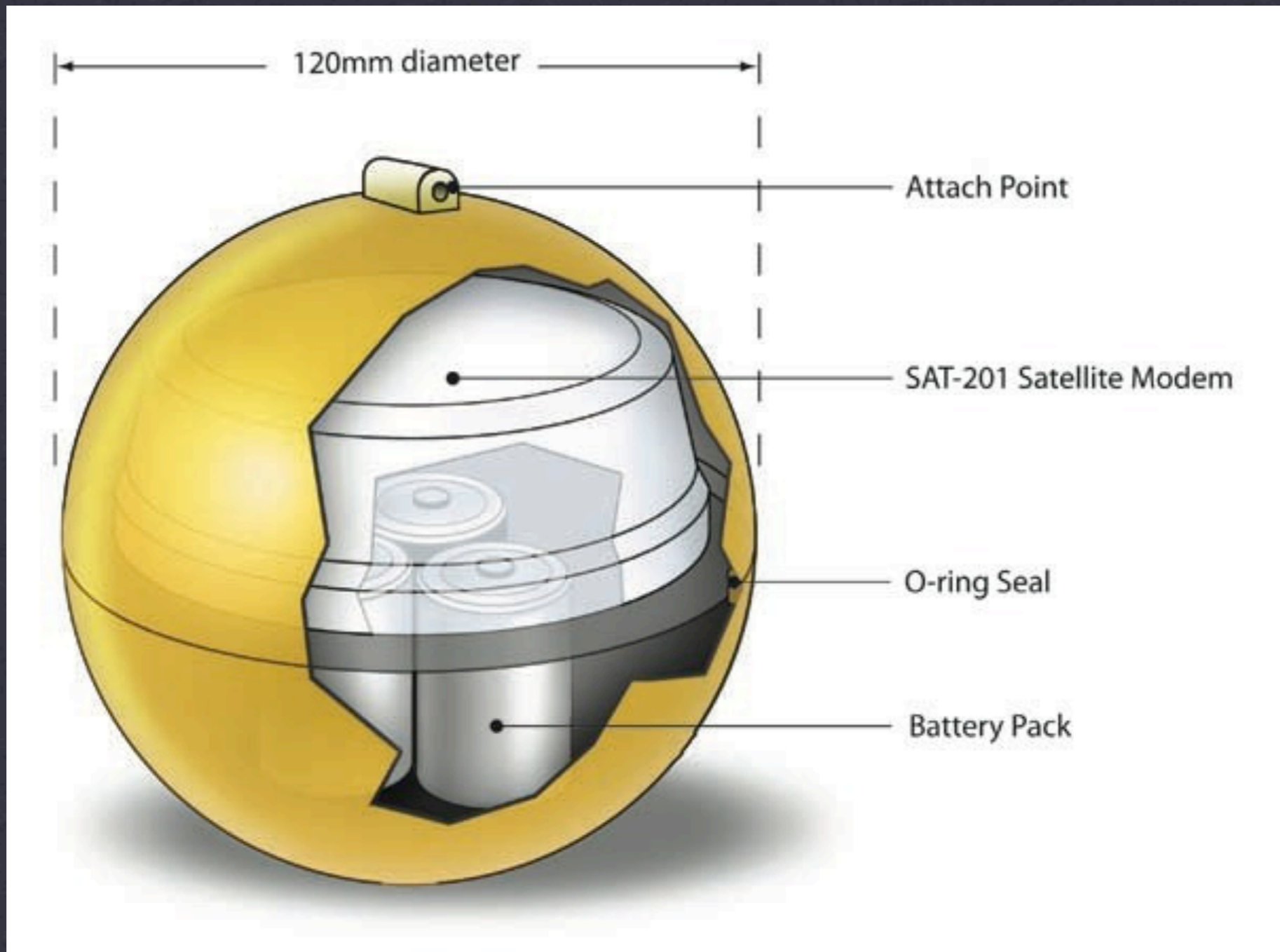
DATE

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NOAA SBIR PHASE I





PROJECT

# RESOLUTION UAS

## CUT-AWAY VIEW OF BUOY BAY



DATE

FALL 2008

CLIENT

NOAA SBIR PHASE I





# TEST FLIGHT OF MODIFIED AIRFRAME

SBIR PHASE 1 - SUMMER 2008





# Benefits to NOAA

- \* Acquire low-cost (~\$15,000 airframe) small UAS
  - ▶ Marinized & Rugged
  - ▶ Flexible sensor payload & mission assignment
  - ▶ Easy operation
  - ▶ Adaptable to any vessel or land based
- \* Acquire small satellite tracker buoy, adaptable for numerous applications
- \* Acquire specific multi-spectral sensor technology useful for a variety of ocean survey applications





# R e s o l u t i o n U A S





# R e s o l u t i o n U A S





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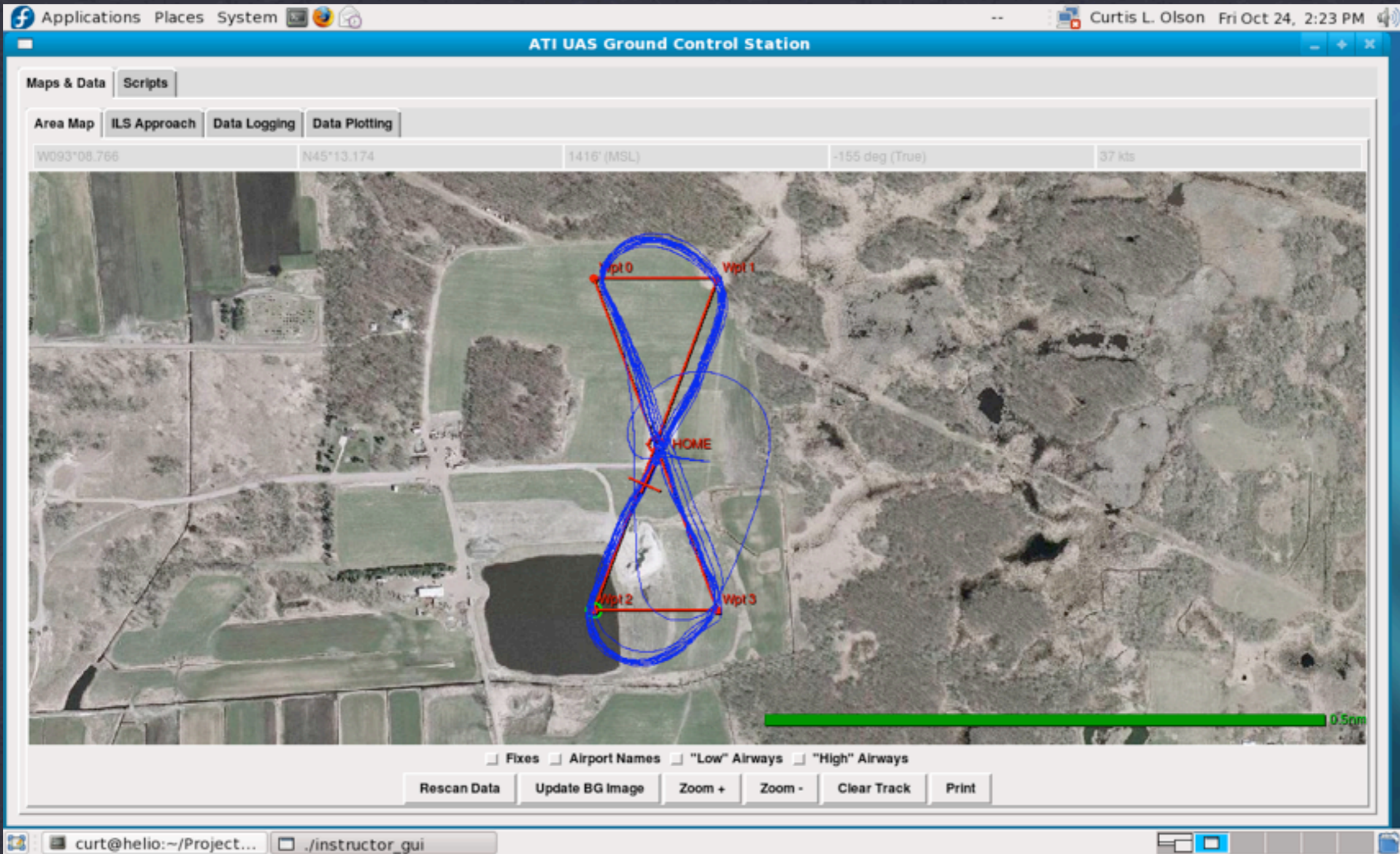
R e s o l u t i o n  
U A S

## SOFTWARE

- \* Flight Control
- \* Ground Control
- \* Open Iris (Anomaly Detection Software)







PROJECT

# RESOLUTION UAS GROUND CONTROL SYSTEM



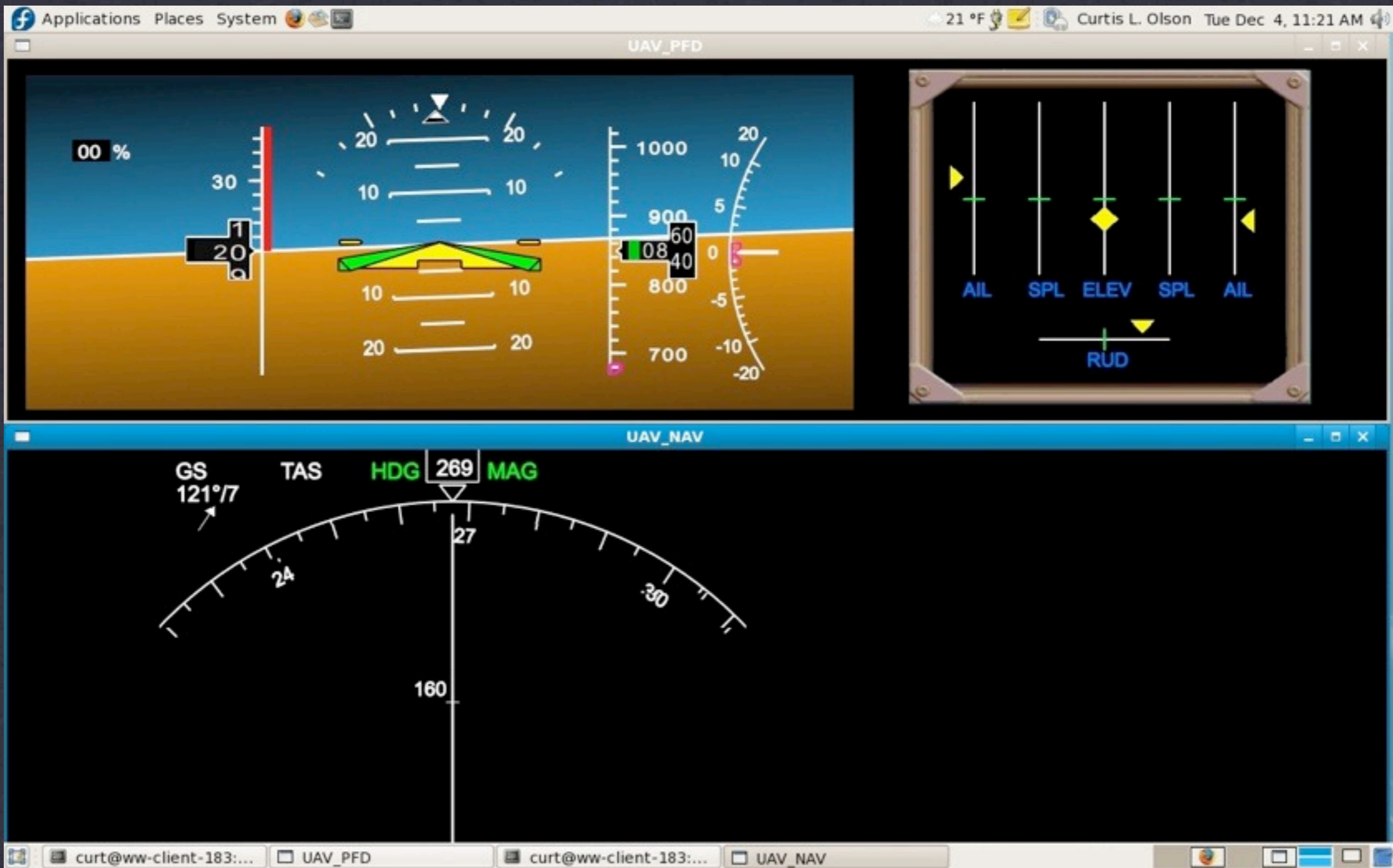
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NOAA SBIR PHASE I





PROJECT

# RESOLUTION UAS GROUND CONTROL SYSTEM



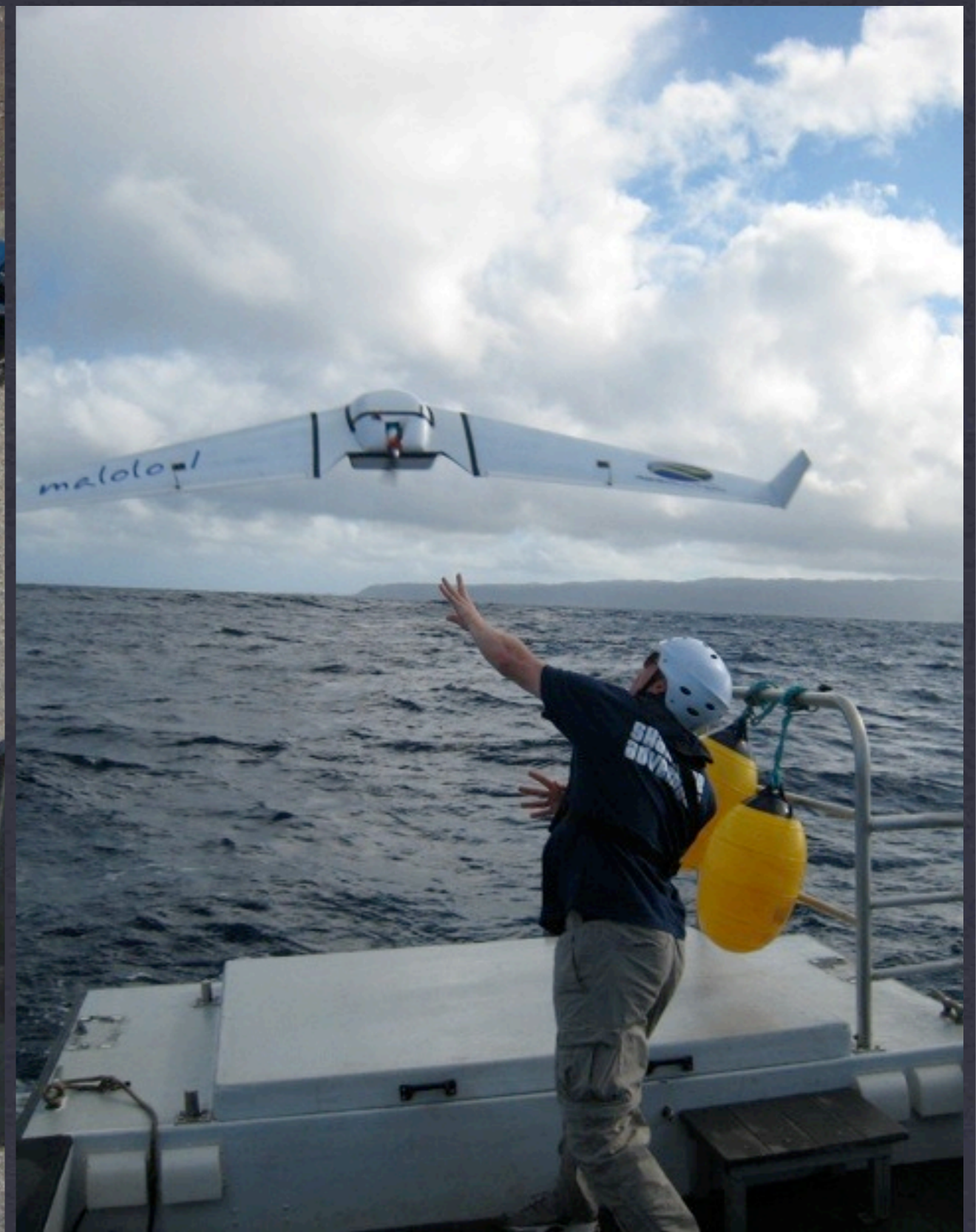
DATE

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NOAA SBIR PHASE I





# SEA TRIALS FROM SMALL VESSEL

HAWAII 2007-2008







PROJECT

# SEA TRIALS - NOAA SHIP OSCAR E. SETTE



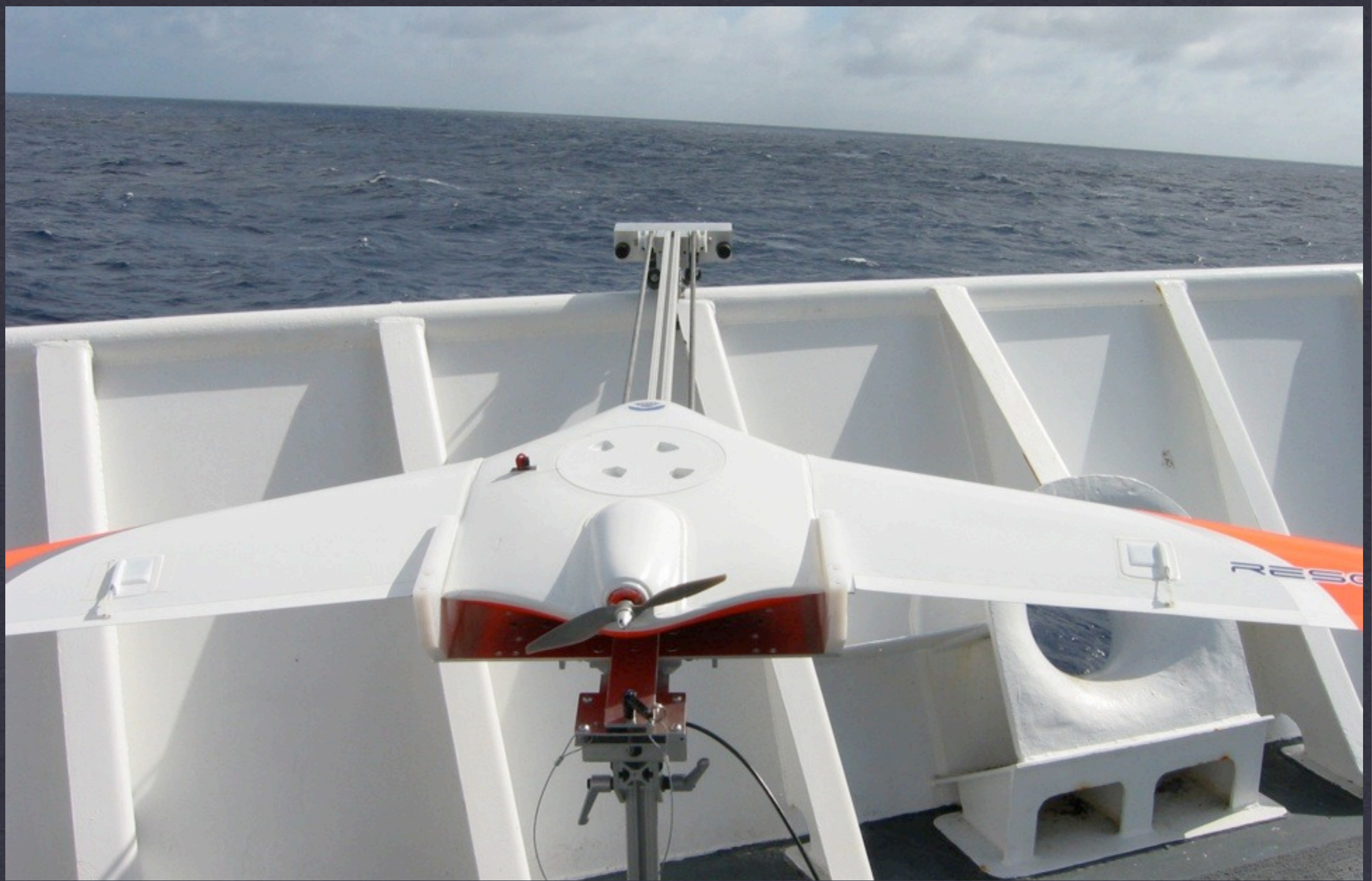
DATE

**MARCH 2008**

CLIENT

**NOAA**





# SEA TRIALS FROM NOAA SHIP

NORTH PACIFIC - SPRING 2008





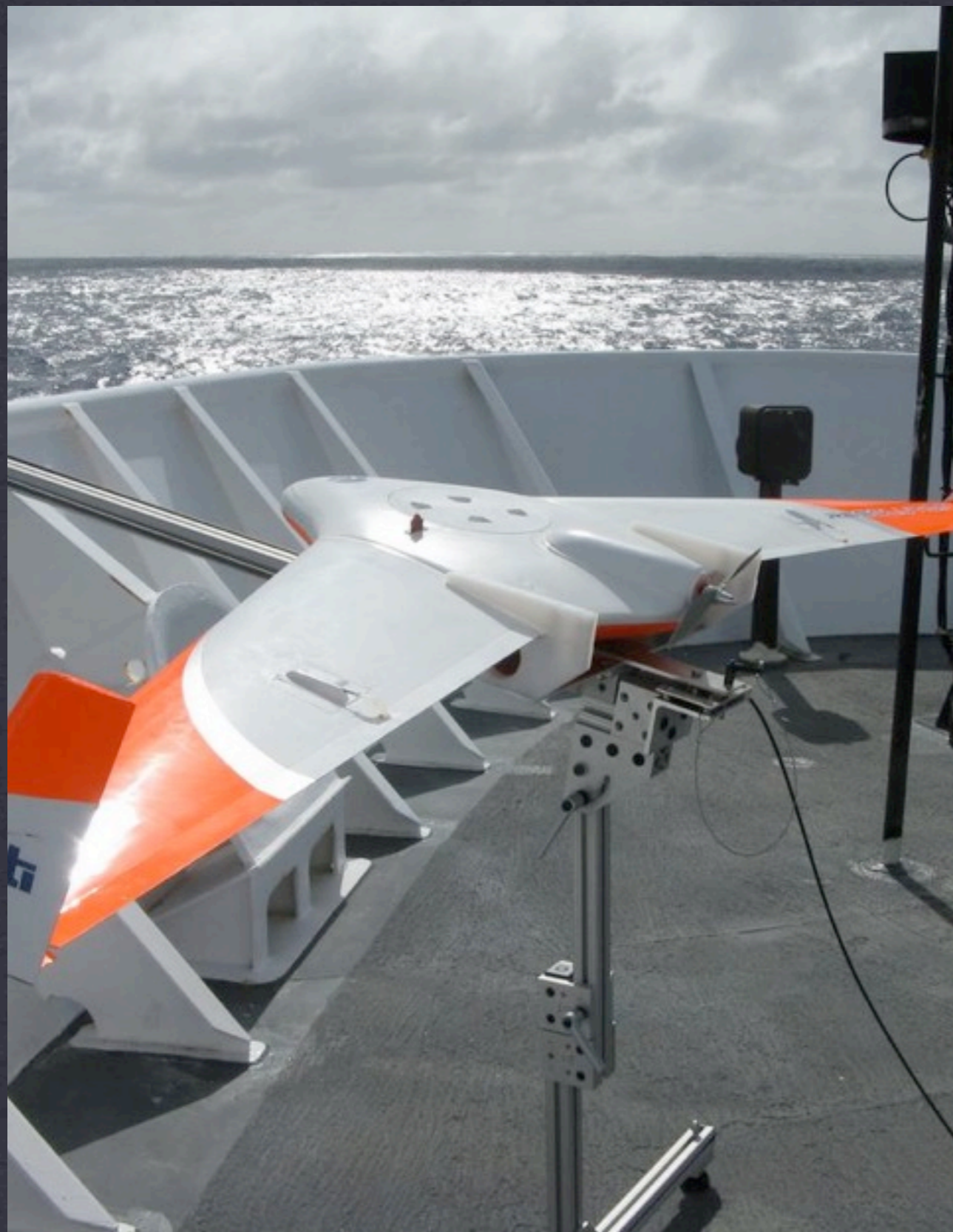


# SEA TRIALS FROM NOAA SHIP

NORTH PACIFIC - SPRING 2008







# SEA TRIALS FROM NOAA SHIP

NORTH PACIFIC - SPRING 2008





# SEA TRIALS FROM NOAA SHIP

NORTH PACIFIC - SPRING 2008







**QUESTIONS?**

# RESOLUTION UAS

AIRBORNE TECHNOLOGIES, INC. 907 357-1500 [WWW.ATIAK.COM](http://WWW.ATIAK.COM)

