Capabilities Overview
UMD UAS Research and Operations Center

UNIVERSITY OF
MARYLAND

Agenda

- Who we are
- What we do
- Where we are
- Equipment
- Past projects
- Ongoing and future projects
- How we can help

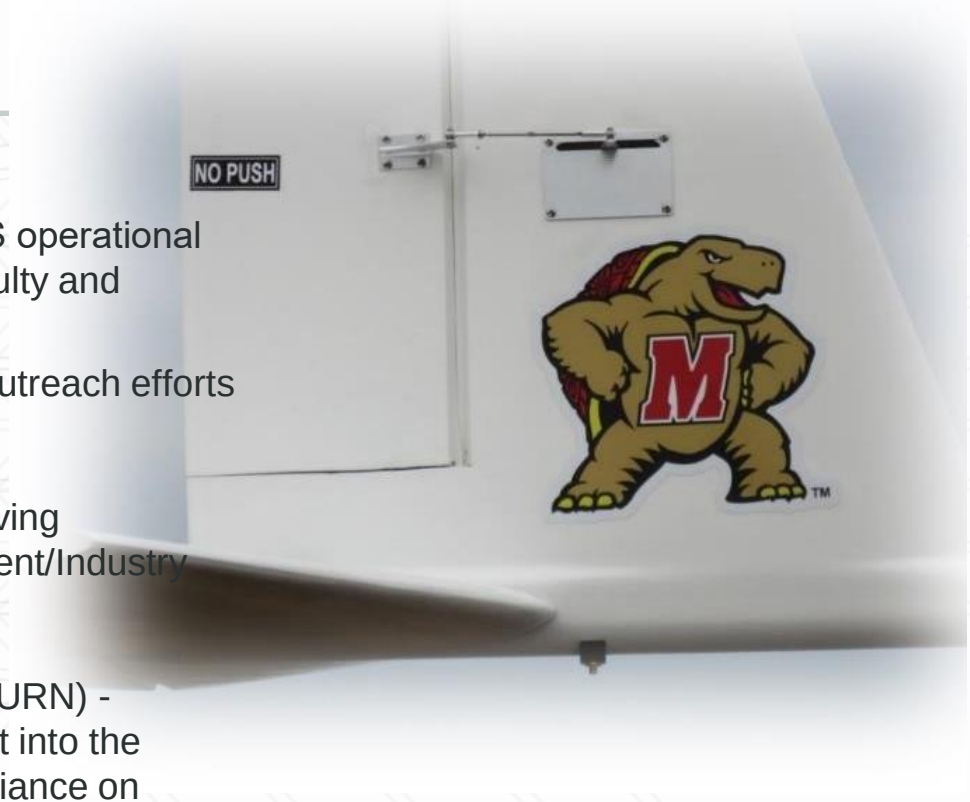
Who we are

- Aerospace Engineering Department
- Formed for UAS Test Site competition in 2014
- St. Mary's County Airport
- Seven staff –
  - Engineers, Pilots, Project Managers, Admin Coordinator (and a Director)

An Asset of the University!

What We Do

- Research and Education
  - “Get research flying” with expert UAS operational and engineering support to UMD faculty and students
  - Engage with local STEM and other outreach efforts
- Operational Flight Support
  - Collaborative research projects involving combinations of Academia/Government/Industry
- Long Term Initiatives
  - Chesapeake UAS Route Network (CURN) - Integrating Crewed/Uncrewed aircraft into the National Airspace System without reliance on segregated airspace



Research & Education

- UROC brings equipment, expertise, and experience to smooth employment of UAS
  - Support UMD researchers and students using UAS for their projects – *it's about the payloads, not the drones*
  - Help select equipment, modify hardware and flight software, physically/electrically integrate payloads, etc.
  - Ensure safety, legality, and compliance with FAA rules

Early Engagement = Smooth Execution

Undergrads

- Student Teams
  - Vertical Flight Society (VFS), Autonomous Micro Air Vehicle (AMAV), Design-Build-Fly (DBF)
- Internships
  - 10-weeks in Southern MD, can extend into academic year
  - Interns propose projects and bring faculty mentors
  - UROC funds pay and project budgets, provides facilities and technical expertise, and rolls in Project Management training

Operational Flight Support

- Support Public/Private entities
  - Use UAS for innovative purposes
  - New airframes
  - Payload integrations onto existing UAS
- Airworthiness
  - In-house engineering review of new and modified UAVs – Safety of Flight

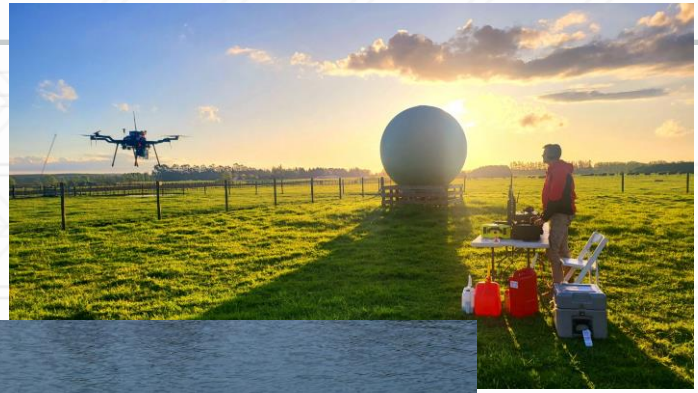
Chesapeake UAS Route Network

- Eventual route network structure connecting UAS points of interest
  - Beyond Visual Line Of Sight
  - On demand, not requiring special FAA permissions
  - Non-segregated operations
  - Not just small UAS
  - Flight Over People
  - UAS Traffic Management (UTM)

Equipment

Who we've worked with

Recent Projects



Ongoing and future projects…

- Artificial Intelligence and Autonomy in Multi-Agent Systems (ArtIAMAS)
- DARPA Triage Challenge - Roboscout
- Wildfire XPRIZE Competition
- UMD Wildfire Grand Challenge
- Precision Agriculture

Precision Agriculture

- Advise and assist with drone applications in research at UMD's AGNR Department
- Support UMD Extension's Precision Agriculture Specialist
  - Long-term goal to automate workflows in precision ag for greater speed, timeliness, and precision in application
  - UROC will house drones and use existing facilities, experts, & local farm for research

So… What can we do together?

- When you need to get up in the air with a drone, think of us
  - Have questions on FAA rules and regulations?
  - Want to save money by using university-owned assets?
  - Trying to sort through drone-makers' claims online?

Come Visit!

UAS RESEARCH AND OPERATIONS CENTER

FEARLESS FLIGHT