Unmanned Aerial Systems in Marine Science & Conservation: A Facilities Scoping Workshop

Duke University Marine Laboratory
Marguerite Kent Repass Ocean Conservation Center
9:00am to 5:00pm, June 29-30, 2015

The use of small Unmanned Aerial Systems (sUAS) in science applications is growing, and they are increasingly used by marine researchers. However, there is a conspicuous lack of training programs and little hardware support for ocean scientists seeking to employ aerial drones in their work.

To address this gap, this workshop will scope the creation of a local facility with three primary purposes:
1) to meet the growing educational needs of marine scientists seeking to use sUAS in ocean and coastal applications,
2) to support sUAS-based research in coastal and marine environments and,
3) to engage the local community and groups visiting Eastern North Carolina in a next-generation tool of marine science.

The two day workshop will start with an overview of marine science applications that employ sUAS and will be followed by a participant driven exploration of the desires, expectations and concerns about creating a sUAS facility in our community. A detailed workshop schedule will soon be available.

To register for the workshop please contact David W. Johnston at 252 504 7593 or email david.johnston@duke.edu
Day 1

9:00 - 9:10 Opening Remarks

9:10 - 9:30 Speaking Introduction & Comments

9:30 - 10:15 Unmanned Aerial Systems: State of the Art in North Carolina
- The Roadmap for UAS in NC - Tom Zajkowski (NGAT-NCSU)
- Engineering the Future of UAS - Larry Silverberg (ENG-NCSU)

10:15 - 10:30 < Break >

10:30 - 11:45 Example Applications in Marine Science and Conservation
- The NOAA UAS program - JC Coffey (NOAA)
- Multi-copter platforms for Photogrammetry and sampling individual animals - Michael Moore (WHOI)
- Mapping macro marine debris with sUAS - David Johnston (Duke)
- Surveying seal colonies with sUAS and thermal imaging - Julian Dale (Duke)

11:45 - 12:15 Workflows, Visualizations and Entrepreneurship
- Mapping seagrass beds with sUAS in the Bahamas - McCain McMurray/Dave Johnston (New Fields)
- droto: Simplifying UAS-based project implementation - Sidney McLaurin (Duke)
- Visualizing UAS data - Open Source Software and Open Access Data - Colin Stief/Dave Johnston (Duke)

12:30 - 1:30 < LUNCH >

1:30 - 2:30 Kickstarting a sUAS Facility in Eastern North Carolina
- Outlining a community approach to developing a UAS facility for marine science and conservation - Rett Newton & David Johnston (Duke)

2:30 - 2:45 < Break >

2:45 - 4:30 Ideas, Expectations and Concerns: Participant Expressions and Perspectives
- Individual/agency briefings and round-table discussion - facilitated by Rett Newton and David Johnston

4:30 - 4:45 Open Question & Answer Period

4:45 - 5:00 Final remarks and discussion of next day
Day 2

9:00 - 9:10  Opening Remarks & Recap

9:30 - 10:15  Scoping a sUAS Facility in Coastal Carolina
Presentation of input from previous day on expectations and concerns of developing a sUAS facility at Duke Marine Laboratory

10:15 - 10:30  < Break >

10:30 - 11:00  Introduction to commercial platforms - capabilities and availability
senseFly - Adam Zylka
PrecisionHawk - Warren Lloyd

11:00-11:45  Discussion of next steps - developing multi-institutional resources
- Establish a roadmap for developing a larger multi-institutional approach through collaboration
- Research and educational programs/resources
- Expanding beyond aerial systems - surface and undersea systems

11:45-12:30  Final remarks and adjourn

12:30 - 1:30  < LUNCH >

1:30 - 4:30  Demonstration of multi-copter and fixed-wing sUAS
Weather dependent, location TBA