

8th EGO Meeting and International Glider Workshop

May 21–23, 2019
Rutgers University, New Jersey

Presented by

UG² EGO

Development of Unmanned Maritime System Pilot Training

Rich Delgado | The University of Southern Mississippi

Co-Authors

Stephan Howden | The University of Southern Mississippi; Kevin M. Martin | The University of Southern Mississippi

Abstract (Oral Presentation)

Since 2016 the University of Southern Mississippi (USM) has conducted the nation's only academic Unmanned Maritime Systems (UMS) certification program, which provides undergraduate training program for people operating autonomous surface and subsurface vehicles, including buoyancy gliders. This five-week, 10 credit-hour program gives foundational understanding of the science and engineering principles for UMS operations. USM is developing a more detailed training curriculum that will provide additional undergraduate-level courses in operation of autonomous subsurface and surface maritime systems with the objective to train UMS pilots. These advanced courses bridge the gap between introductory vehicle operator training and proficient unmanned system operators, thus increasing students' knowledge and experience to an accredited level and significantly reducing an UMS using agency time for on-the-job training. As part of a NOAA-NGI grant to improve the understanding of the meteorology and oceanography of the Gulf of Mexico through building and utilizing the capacity of buoyancy glider missions, the first phase of this expanded curriculum, glider pilot training, is being developed.

Based on user needs and industry innovation trends, this next tier of UMS training will have objectives to provide students with the ability to plan missions to include analysis of matching task to vehicle range, endurance, navigation accuracy, and sensor capabilities; vehicle and payload constraints, including those imposed by environmental considerations; communications & control; data collection and protection; safety, policy and legal constraints; general troubleshooting; and shipment, launch & recovery. Students will mitigate mission risks and operate autonomous subsurface and surface vehicles, understanding dynamic mission modifications due to environmental conditions.

The target audience for this training would be twofold: UMS-capable agency, university or company employees plus undergraduate ocean engineering or marine science students. Undergraduate students enrolled at USM would receive credit towards degrees in marine science and engineering majors. Since these two audiences have different time availability, the UMS curriculum would be offered in Oral a 5-8 week compressed session and semester-long courses. The USM program would be a resource that other institutions can use for training glider pilots, helping to build capacity in the Gulf and elsewhere.