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Comment

## ***Interactive comment on “Technical Note: A low cost Unmanned Aerial Vehicle for ship based science missions” by E. Waugh and M. Mowlem***

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Hi #2,

Thanks very much for your comments.

The fact that it is very difficult to recover a UAV while working at sea is partly the motivation for this project, which focuses particularly on developing a low-cost vehicle. Existing commercial systems are very expensive relative to the cost of ship time and the equivalent value of data collected. This means they need to be recovered in good condition after numerous flights. By designing a vehicle in-house and for low-cost at maximum range, it becomes essentially disposable relative to the value of the data (or ship time saved). Recovering the vehicle is possible (as shown in Figure 4) but not

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necessary. If you recover a vehicle where much of the superstructure is damaged, you can still retrieve the most valuable components, the data, the Flight Control System and the payload. To guarantee data retrieval, this would be transmitted to the ship prior to recovery. Thus, I would consider the test deployment, where the data was recovered, to be a success and that the same result could be achieved in much worse weather conditions.

On the issue of determining whitecapping, although I agree you can acquire useful data from a ship using video, you are very limited in the area you can cover. In a ten-hour flight, the UAV described would cover 2000 km, at a 40,000-m2 image (200x200) this is 400 km2 of data. It would take the ship 8.3 days to cover the same distance (at 10 kph), you would probably not have as large footprint and of course, the weather conditions could change more in the longer time. With the UAV, you also have the possibility of sending it to a distant location to assess the conditions and then returning, guiding the ship to areas of interest.

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Interactive comment on Ocean Sci. Discuss., 7, 757, 2010.

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