July 23, 2006

Sunday morning, the last day of the Human Powered Submarine Competition, is the start of another hot day. Heat records were being set throughout California with temperatures over 110F on Saturday. The final day of the competition provides only ½ day of racing, but everyone will have at least one run and things are being patched together to at least try to get an official time.

Problems have plagued the University of Maine on its first time out in the competition. Friday night the servo motors for the fly-by-wire control system were repacked and the mounts were repaired for a run first thing on Saturday morning. Not surprisingly, the tow tank gets crowded when waiting for the run. The Maine team was lined up waiting a turn on the course. A team member from another team was swimming past the UMaine sub during the launch of their submarine. This swimmer accidentally kicked one of the UMaine horizontal control surfaces. The hit was in the team's most vulnerable point. The servo mounts have been a weak point since the start of the competition. Now in the next to last day of the competition just before the first run of the day another servo mount was broken. The UMaine team gamely made the run, but the submarine veered out of control from the start. Thus the only run of the day on Saturday for the Maine team did not result in an official time.

The flavor of the competition is very cooperative though. Only one other team is competing against Maine in the non-propeller division, the University of California at San Diego. UCSD has oscillating hydrofoil design with a single horizontal tail. Immediately after the UMaine run, UCSD team members came up to the team and asked what happened. The UCSD team response, "We are gonna' fix your sub!" UCSD currently holds the class record for a human powered submarine. A win in the competition is a hollow victory without UMaine's boat in the water. The goal of the competition is to compete and to learn. UCSD clearly understands this spirit.

For today, in an attempt to get an official time for the boat, UMaine's team has rigged a set of manual controls using wire, and buoy release and the clamps from the servo. The fly-by-wire is intact on the dive planes and will be used for the final timed attempt. The challenges associating with controlling the submarines are not limited to Maine. TU Delft spent all night working in the parking lot of the Escondido Super 8 on their fly-by-wire system. At dusk the Delft team sat in the 100 degree heat of the parking lot eating a dinner of supermarket deli counter roasted chicken and salad. Their discussion was going in the direction of switching over to cable controls in order to post an official time in the competition. However, by 6:00 am on Sunday morning after a full night of work, the team was making final adjustments to their fly-by-wire design. The challenge of the competition is engineering, not speed. The Deflt team came with the intent of controlling their submarine by joystick, and they would go home without giving up. A previous team from TU Delft had already taken a similar submarine over 6 knots, the goals for this year's team were focused on controls. They were going to go home having done everything they can to make the controls work.

Thus starts the last day of the competition. See pictures posted at:

http://www.umaine.edu/MechEng/Peterson/Classes/Design/2005_6/HPS_Competition/2006_human_powered_submarine_com.htm