

UBC Team Voyage

Engineering students are designing and building a transatlantic voyager

By David Rahn

Forty University of BC students from a variety of disciplines have joined together as UBC Team Voyage to create a new type of sea-going vessel capable of crossing oceans under its own guidance, using only sunlight for power.

Team Voyage members began work on designing and building a prototype in early March 2018 to test power options and autonomous navigation hardware and programming. They completed this craft in just 10 weeks – a testament to their passion and focus. The seven-foot prototype travels a little over six feet per second at top speed (see photo next page) and



Top photo: UBC VOYAGE Team members (l-r): Brendan Mierau (navigation lead) and Torbjørn R. Fyrvik (team co-captain) assemble the red cedar hull of the prototype on its building jig.

Lower photo: Left-right: ÝYên Gallup (team co-captain) and the student's mentor, naval architect Don Martin, discuss equipment and electronics placement in the hull.

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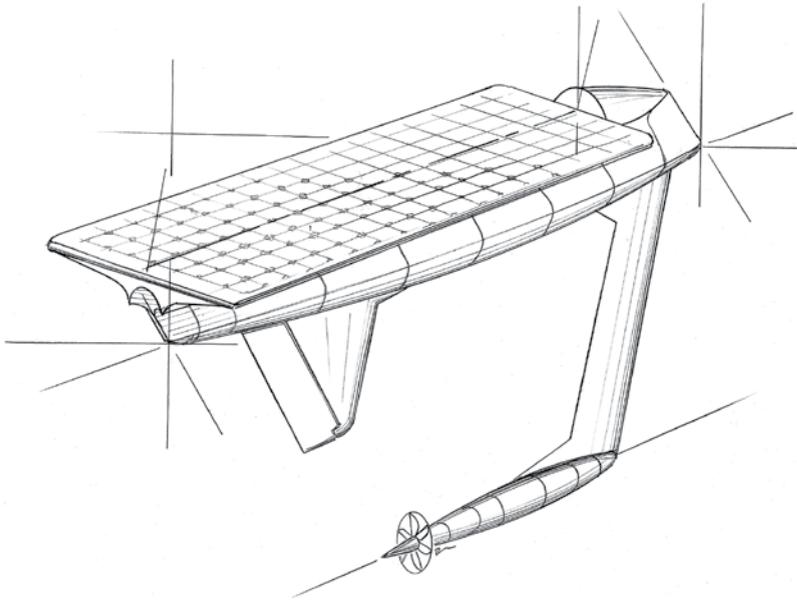


Co-captain, ÝYên Gallup launches the prototype in English Bay for its first powered voyage (inset). The students completed the prototype in just 10 weeks from design to sea trials.

the team is currently testing to get a good idea of the drag curve at different speeds along with the actual current draw at various speeds. Design work for the full size craft has already been started (see sketch).

Construction of the prototype and the 16-foot transatlantic UBC SOLAR VOYAGE craft is taking place in the workshop of the team's mentor, naval architect Don Martin, who has been a driving force in UBC students' previous world champion Sailbot autonomous sailing projects (see *UBC Students prepare to Defend their Championship at Sailbot 2013* in the June 2013 issue).

"The young VOYAGE team reminds me of my early days with the Sailbot team," says Don Martin, "very motivated and with a definite 'can do' attitude. I know we can design and build the transatlantic craft within the next 12 months. The major challenges will be our fundraising, and the design and assembly of the electronics package, complete with coding.



A sketch of the full-size UBC SOLAR VOYAGE. Don Martin describes the design as “a catamaran on its side.” The craft will have more than half its weight and all of its propulsion machinery in a power pod on the end of a carbon strut. Electronics and controllers will be housed in the upper hull under the large solar panel array that will be capable of tilting laterally to reach optimum solar collection angles on its voyage across the Atlantic Ocean.

“The big dollar items in the program are the solar panels, the batteries and the carbon for the solar support structure and keel strut. The VOYAGE team is very efficient dollar-wise, they know that money is tight and they want every dollar to count. The purchase of the panels and the batteries can wait for now,” he adds, “but I hope we can acquire the carbon materials fairly soon so that we can get on with the construction of the complex solar support panel component.”

Don notes that many of the skills required to successfully run the program – meeting schedule dates, dealing with procurement, team management, budgeting and fund raising – are skills that all of the students will require during their working careers.

Updates on the students’ progress will be posted at www.ubcvoyage.com and UBC Voyage on Facebook and Instagram. Readers interested in supporting UBC Team Voyage can contact co-captains Torbjørn R. Fyrvik and ÝYên Gallup at ubcvoyage@gmail.com or reach Don Martin at dam242@telus.net ▶

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