A skipper sets sail with navigation assistance from a start-up

November 3 2014, by Cécilia Carron

Can this boat go any faster? Starting Sunday, a device developed by Anemomind will help Swiss sailor Alan Roura evaluate his performance during racing. The tool, which is also useful for amateur sailors, records GPS and environmental data and helps competitors improve their performance.

Sunday, 2 pm. This will be the grand departure for the 91 sailors taking part in the famous Route du Rhum. Swiss skipper Alan Roura is among them, taking up the challenge of this solo crossing from Brittany to Guadeloupe. Aboard his boat Exocet, a new device developed by an EPFL start-up will give him precise and real time information on his performance.

"For example, if the device indicates 80%, I know that by pulling a little on the sails or varying the angle of the wind, I could go faster. The goal is to get close to 100%, a number that represents the maximum speed that I have achieved with the boat under the same meteorological conditions," said the skipper when visiting Switzerland between two phases of training in Lorient, France. The system takes into account the strength of the wind, GPS data, the speed of the water flow and its direction, using a magnetic compass, and relates them to the boat's speed. "It's very easy to use," says Roura, who used it during his preparation. "You turn it on, and it works."

The instrument is small enough to fit in a 10-centimeter cube. It draws on GPS and environmental data specific to the boat. The device goes

beyond simply determining how fast the boat is going: it compares the boat's speed to historical data. Algorithms developed by Anemomind at EPFL automatically calculate, in real time, the boat's speed as a percentage of the highest speed previously achieved under the same conditions. The calculations are made using data recorded during training sessions and previous races.

Support systems for optimizing navigation are currently reserved for advanced boats. The information is based on a theoretical calculation carried out by a dedicated team based on the technical characteristics of the vessel. "Our system is fully automated. It takes into account the human factor, and the parameters are constantly updated according to the evolution of the skippers and the boat," said Julien Pilet, creator of Anemomind.

"And when I explained to Alan during our first meeting that, in addition to helping the performance, the device corrects the data of onboard instruments automatically, I saw the smile on his face widen." The daily observation of the proper functioning of each device on one or more benchmarks thus becomes useless. This marks a welcome gain in time, especially for a solo race which lasts several weeks.

Analyzing performance after the race

Clearly of use while navigating, this unit is equally helpful afterward for analyzing performance. The Anemomind system provides access to data via a specific and intuitive interface currently in development. Trajectories, instrument settings, speed – all data are visually represented. Zooming in on a specific segment of the race immediately shows performance at time T.

"The web platform makes it a social tool as well," explains Julien Pilet, who is a sailor since over 20 years. "After the races, navigators like to

comment and analyze their performance. Our device allows overlapping trajectories, making it possible to compare decisions made while sailing and even share 'exploits' on social networks."

An initial version of this device was developed already in 2007 by this sailing enthusiast and serial entrepreneur. But it was at the end of 2013 that the idea behind the start-up took off thanks to the support of EPFL. Currently, it is being tested on three boats. But Alan Roura still has a number of developments in mind for it. For example, by making it proactive, it could give advice on how to achieve maximum performance. A former PhD student at the Computer Vision Laboratory at EPFL, he would like to see his system perfected by incorporating technologies he contributed to while working on Alinghi and the Hydroptère.

Provided by Ecole Polytechnique Federale de Lausanne

Citation: A skipper sets sail with navigation assistance from a start-up (2014, November 3) retrieved 2 September 2024 from https://phys.org/news/2014-11-skipper-start-up.html