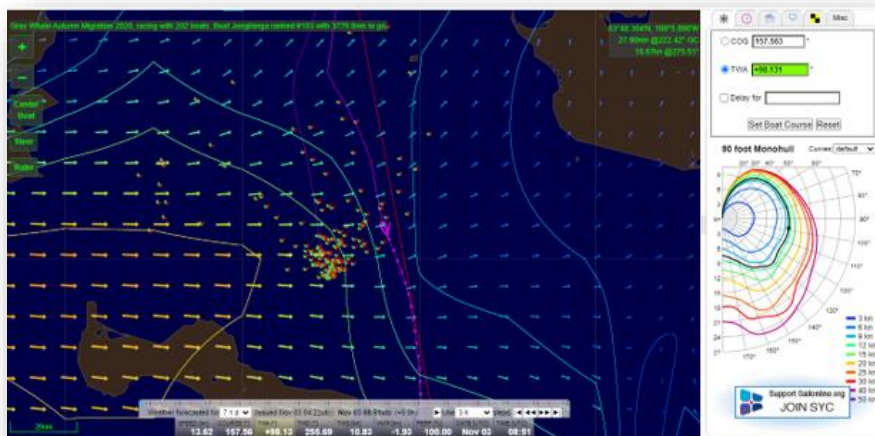# Virtual Sailing a way in which to learn to sail?

To celebrate the 50th anniversary of the Cape2Rio Yacht Race, and with two years to go until the next edition, a virtual race between these two iconic cities set off on 2 January.

Cape2Rio 2023 Race Director Anthony Spillebeen gave us some insight into exactly how virtual racing can hone your skills and be used for training and learning…

Many years ago when working on a successful Volvo Ocean Race Team as deputy shore manager, I was able to see how precise and dedicated the boat navigator worked in order to develop the options as race day approached. Working together with meteorologists, and in some cases navigators from previous races, you saw them slowly piece together a game plan. Every day they crunched the numbers using past data and current weather information to interface with the pending start date. The sophistication was mindboggling, multiple routes being run simultaneously to identify and quantify the options that will play out come race day and in the weeks ahead.

The navigators then challenge themselves against the data, evaluating the conditions predicted and from experience defining whether the boat and its crew can keep up the intensity. They have the ability to influence the output by adjusting the percentage efficiency that they believe is reachable for any given course, direction, sea state and wind condition. Always looking for that small hidden advantage that will make the difference.

In the past the sophisticated software required to run these options was hard to come by and expensive to boot. Downloading weather grib files was considered a dark art. Weather information has always been available from most national weather authorities. This information is a compilation of data sampled from fixed installations on land and sea that monitor the atmospheric pressure in a specific region, then by piecing together the data and literally joining the dots, a visual presentation of the weather pattern can be developed and its path predicted over time. In the old days this would then be broadcast as a notice to mariners, such as a weather forecast in a newspaper, accompanied by a synoptic chart which depicts the weather isobars and the direction in which the front or high pressure system is moving.

Global weather forecasting has also been significantly enhanced by satellite observation of our planet, effectively tracking the movements of clouds and their formations. By taking pictures of the earth at regular intervals it shows the track of weather systems, thus helping to determine speed of passage. Land based organisations use this data to feed the public updates on expected weather conditions. Racing sailors use this information to go faster, to point

their boats in the right direction and to make informed decisions on when to break away and forge an alternative route. Many a story exists when races have been won by following a hunch and believing the data, similarly looking at the sky has also never been a bad thing.

Floating beacons within the sea, deployed by all nations around the world, relay up-to-the-nano-second information about the weather and sea state across all parts of our ocean. Some of these beacons are free floating, transmitting valuable data via satellite communication that gets crunched by the National Oceanic and Atmospheric Administration (NOAA). This output data becomes the "base layer" information from which commercial entities then review and interpret the data to formulate their individual versions of what will happen in 1 hour, 2 hours and even a week ahead. It's a continuous flow of information that can now be used to plan routes for racing and cruising yachts.

The advent of easily accessible computer services, mobile phones and the desire to make hourly decisions about activities we undertake and the impact the weather has on this, has led to the development of amazingly accurate plethora of services and formats that we can interface with. Online navigation tools, that can be pre-programmed with the performance prediction curve, known as a polar, of any specific yacht, can now be used to simulate the optimum course to the next mark. Once this is defined it is up to the crew to try and keep the boat moving along the required path and hit the targeted boat speeds or a given direction.

Online "games" like Sailonline.org, www.sailonline.org and Virtual Regatta, attempt to provide a realistic as possible opportunity for both accomplished and aspirant navigators and crews to undertake real-time racing online. The games all have access to the weather outputs from NOAA. The reports can be downloaded and fed into a variety of routing platforms to determine an optimum course. The "player" then feeds the output into the game and watches the Virtual Boat they are in charge of, progress along the predetermined route. The virtual boat can change direction on command either while following the downloaded string of direction instructions or changing direction based on a compass steering module in the game, which allows immediate variation from any big picture plan.

Naturally there are some downsides to these games, as "In Real Life" sailors know that many factors prevent us from sailing at 100 per cent efficiency both upwind and downwind. All of this influenced by the ability of the crew, incorrect sail selection, old sails, wrong sails, or a badly prepared boat, etc. The games make certain assumptions, such as that everything is perfect, this however does not detract from the learning curve, as these games force you to expand your mind and think laterally.

One thing you realise when you race in a virtual world is that the art of navigation is alchemy, science, nature, maths and intuition. A wonderful interplay of finite theories and interpretation of what one is seeing and what one has experienced in the past. You also realise that out in this virtual world there are many clever people who don't actually sail. They are however enthralled by the concept of sailing, drawn by its allure and it's the maths that makes them tick.

Aligning an "In Real Life" race such as the Cape2Rio yacht Race 2023 www.cape2riorace.com with an online event and hosting it both simultaneously and in the build-up years has multiple benefits. Firstly from a promotional perspective it allows the Race Organisation to present their race in advance, to build global awareness and get people talking. It also allows teams, owners and navigators to evaluate the route ahead and start familiarising themselves with the conditions they will encounter. The online community is also global. Suddenly you have access to a multitude of nationalities, while the chatrooms associated with these games allow you to interact and post messages about your in-real-life event. Developing a social media reporting structure around the progress of the virtual race also provides media value that helps to grow an event's audience which becomes valuable when looking to engage with partners down the line.

Another aspect of virtual racing that is definitely valuable is the obvious learning and teaching opportunity. Maths (Vectors & Resultants), Science, Geography, Climatology, Oceanography as well as time and distance are all covered by the games in one form or another. A clever programme could link the physical location of the boat with Geographical and Oceanographical phenomenon in the immediate vicinity, both above and below the ocean. This can all be taken into the classroom, with classes competing against each other and seeing the results of their weather interpretation and the outcome of a collective decision making. These games run multiple races simultaneously so suddenly you could be teaching children about phenomena all over the world, taking them past countries and undersea features while still helping them to think laterally.

Every Academy and Yacht Club across South Africa should be promoting this form of learning. It's next level stuff and it is dynamic.