

500 YEARS OF CIRCUMNAVIGATION

On September 20, 1519 the Spanish fleet *Armada de Molucca*, under the command of Fernão de Magalhães (more famously known as Magellan), set sail to find a passage to the Far East by sailing around the tip of South America. By the time the single vessel carrying 18 survivors returned to Spain, they may have completed one of the most important voyages ever undertaken.

Over the 500 years since Magalhães' crew's circumnavigation of Earth, humanity has seen great advances in technology and design, and now we can round the Earth faster and smarter than ever before. In the first 400 years, progress was relatively slow. But, since Joshua Slocum's first single-handed circumnavigation of Earth in 1895, there has been a steady decline in the amount of time necessary to complete this journey.

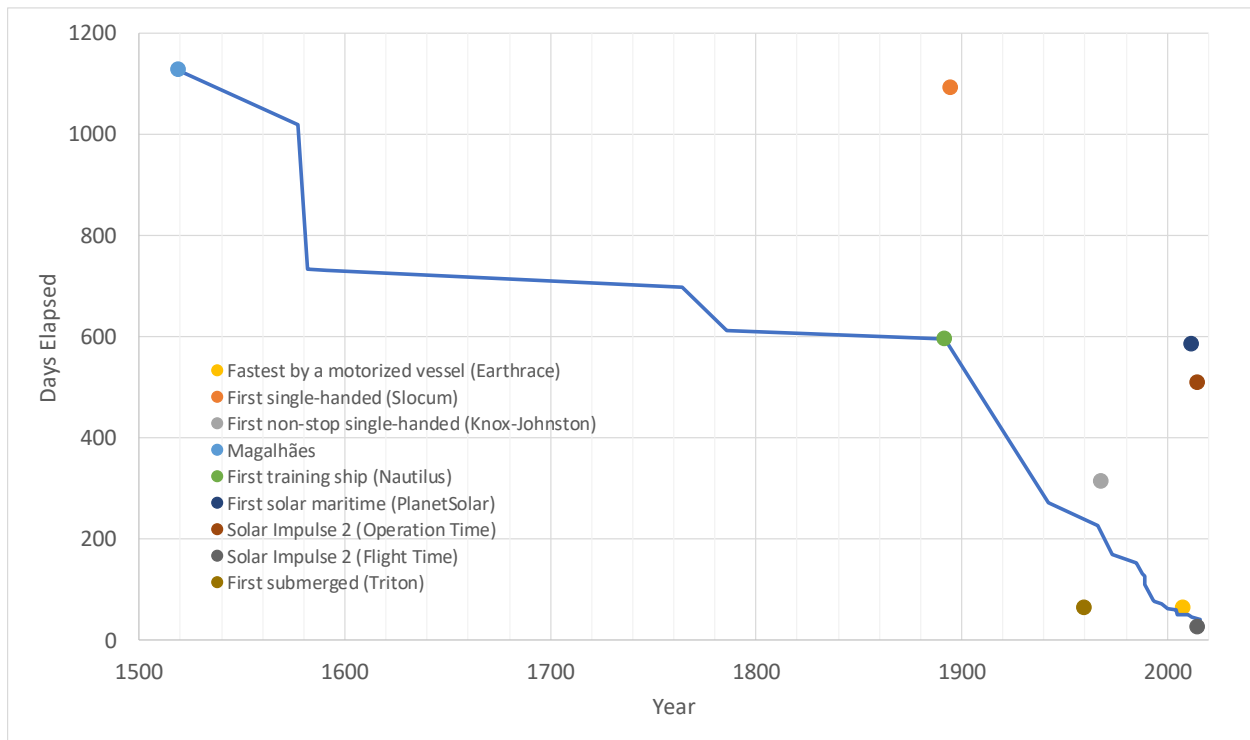


Figure 1: Recorded circumnavigations of the globe by sail.

With races like the BOC Challenge (Velux 5 Oceans Race) and the Vendée Globe heading the rebirth of the Sunday Times Golden Globe race in the early 1980s, there has been a steep decline in the amount of time necessary to complete a single circumnavigation. At the same time, the necessary time to complete a single-handed circumnavigation has also decreased, as illustrated in Figure 2.

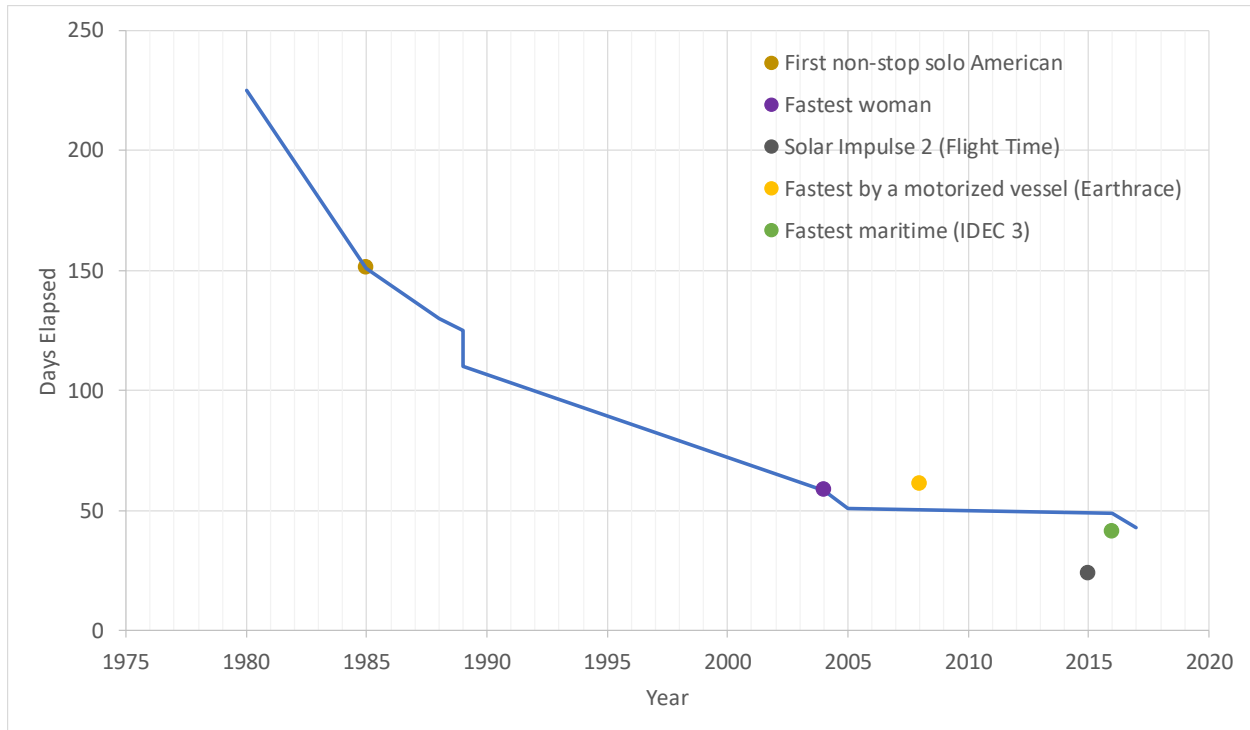


Figure 2: Recorded single-handed circumnavigations of the globe by sail.

Remarkably, advances in mechanical propulsion do not necessarily decrease circumnavigation times. The current world record for a circumnavigation by a motorized vessel was achieved by *Earthrace* in 2008 with a time of approximately 61 days. While the nuclear submarine *USS Triton*, built in 1960, holds the record for a nuclear propelled vessel submerged circumnavigation of the globe in approximately the same amount of time.

Yet, these records pale in comparison to the current absolute maritime circumnavigation record, which was completed in 2017 and is held by the sailing yacht *IDEC 3* with a time of approximately 41 days.

This means that engineers have been able to advance the use of wind power to such an extent that in the early 2000's sailboats overtook the capabilities of motorized vessels.

But wind is not the only useable sustainable power. In May 2012, *PlanetSolar* became the [first solar electric vehicle](#) to circumnavigate the globe, but it could not achieve the speeds of sailboats as took 584 days to circumnavigate.

And after 500 years navigating the seas, between 2015 and 2016 the *Solar Impulse 2* became the first [solar powered aircraft](#) to circumnavigate Earth on sustainable power.

However, in the wake of seemingly unstoppable technological advances, the increase in global commerce has sped the rise of sea levels, increased the atmospheric greenhouse gas levels, and polluted the waters throughout the world. Thus, as we celebrate how far we have come in 500 years, let us not forget to strive toward more sustainable technologies.

Hopefully, the increased use of renewable energy technologies, like [wave energy conversion](#), will allow us to speed forth sustainably across the seven seas, becoming one with the Earth, rather than succumb to Mother Earth's primordial power.

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