REFERENCE SHIPS

CMCE MARINE |

LIGHTNING PROTECTOR



THUNDERSTORMS ON THE HIGH SEAS



Electrical discharges form as a result of high electrical activity. As the electric potential rises, a potential difference develops between the cloud and the ground, eventually leading to the appearance of upward-moving streamers from the ground and downward-moving streamers from the clouds; these meet, resulting in the lightning discharge and its branching paths.

At sea, vessels serve as the medium through which these upward-moving tracers travel, making the vessels themselves targets for lightning strikes. Such strikes can affect electronic and navigation systems, the mast structure, the hull, and human life.



Fuente: https://www.pulzo.com/mundo/video-instante-exacto-que-rayo-cae-sobre-yate-destroza-eeuu-PP728445

Cientos de miles de embarcaciones de lujo navegan los mares por todo el mundo, con un alto riesgo de ser impactadas por rayos. Sobre un 70% de las reclamaciones de seguros en el segmento marino, corresponden a descargas eléctricas.

También el riesgo reside para embarcaciones comerciales, este segmento puede subdividirse en buques de carga, cruceros y plataformas petroleras. Las rutas oceánicas en las cuales se desplazan son puntos geográficos en donde son propensas las descargas.

THUNDERSTORMS ON THE HIGH SEAS

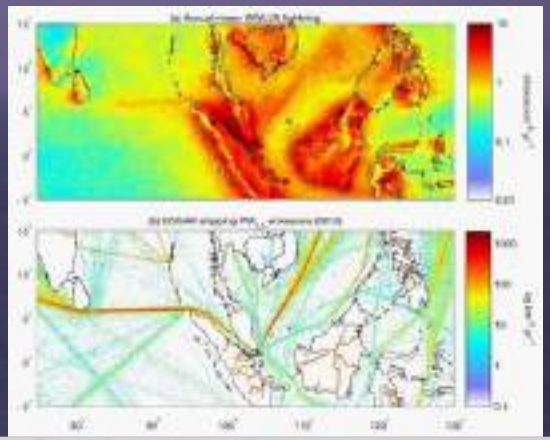


Problems with the vessels.

- Vessels are moving targets. The type of sea or water in which the vessel navigates alters the resistivity conditions of the grounding system.
- As the vessel travels, it passes through different electric fields at various geographic locations.

Study conducted at the University of Washington and NASA

A comparison of lightning strikes between 2005 and 2016 in the eastern Indian Ocean and the South China Sea (top) and shipping emissions (bottom) shows a clear correlation between where humans sail and where lightning strikes.



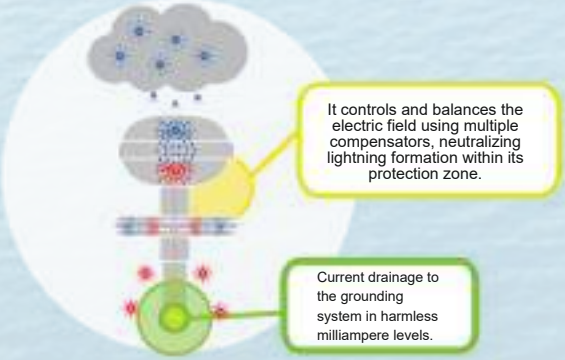
Source https://www.wired.com/story/why-lightning-strikes-twice-as-much-over-shipping-lanes/

THE SOLUTION



The CMCE SERTEC MARINE protector aims to prevent damage and safeguard people, animals, and property, as well as protect the hulls and structures of vessels against any electrical phenomenon transmitted through the air.

The CMCE SERTEC MARINE is designed to protect against electro-atmospheric effects caused by climate change, compensating for and stabilizing electrical charges in its immediate environment and while in motion on the high seas.



One electrode of each capacitor is referenced to the ground system and acquires the same polarity as that system. The free electrode induces atmospheric charges of opposite polarity, thereby achieving internal balance between the electrodes.

This generates a flow of charges to the grounding system—absorbed from the atmosphere—thereby preventing the formation of lightning.

The following are references of successes.

68’ F&S



YATCH	EE. UU.	2020	EE .UU.

SURFARI 50



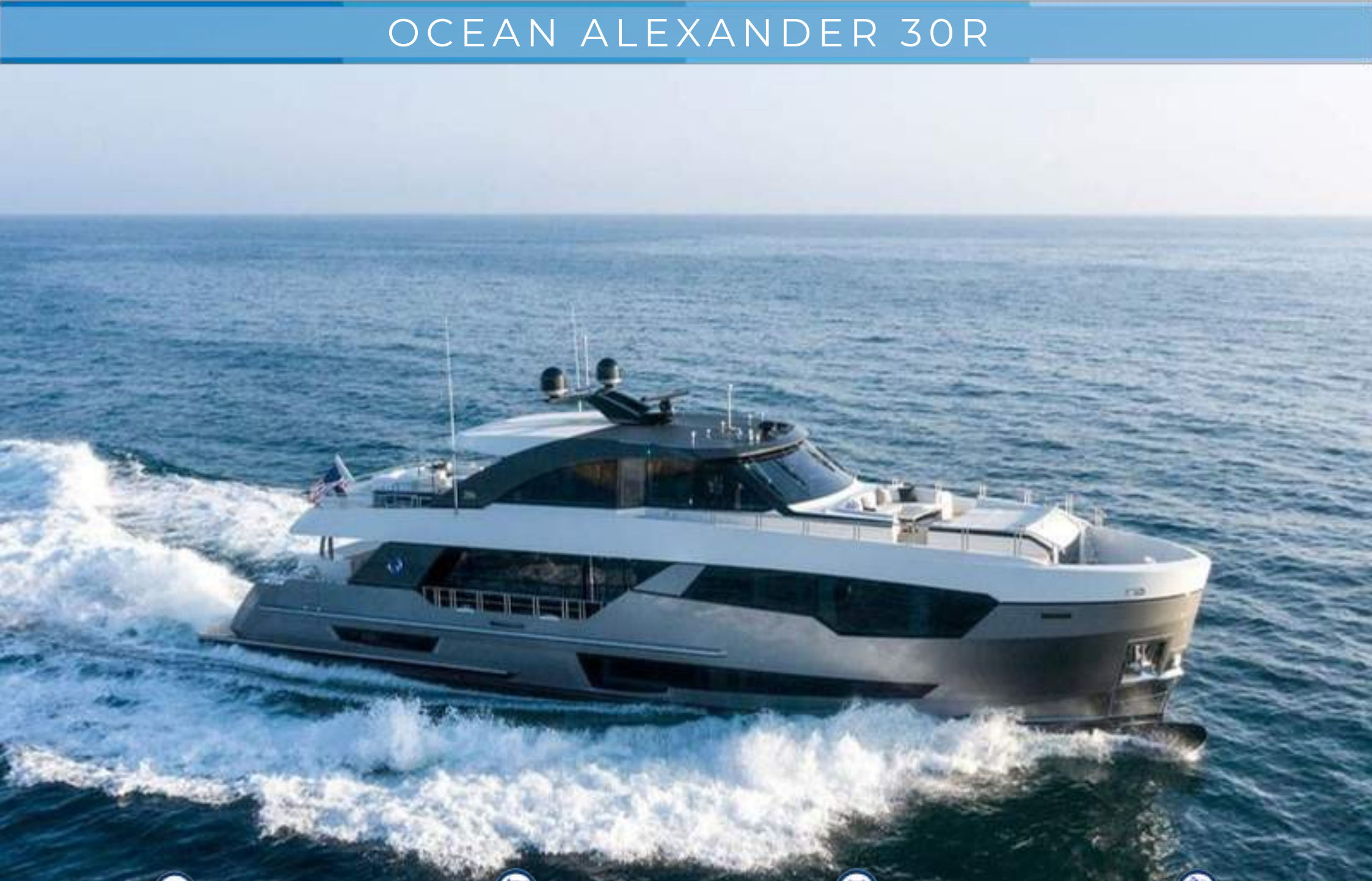
SAILBOAT

EE. UU.

2017

EE .UU.

OCEAN ALEXANDER 30R



YATCH	EE. UU.	2021	EE .UU.

LAGOON 620



CATAMARAN	GERMANY	2020	EE .UU.

PARADISE ADVENTURE



CATAMARAN	EE .UU.	2017	EE .UU.

80 SUNREEF NANAN 2



YATCH	EE .UU.	2020	EE .UU.

ANTARA



YACHT

NEW ZELAND

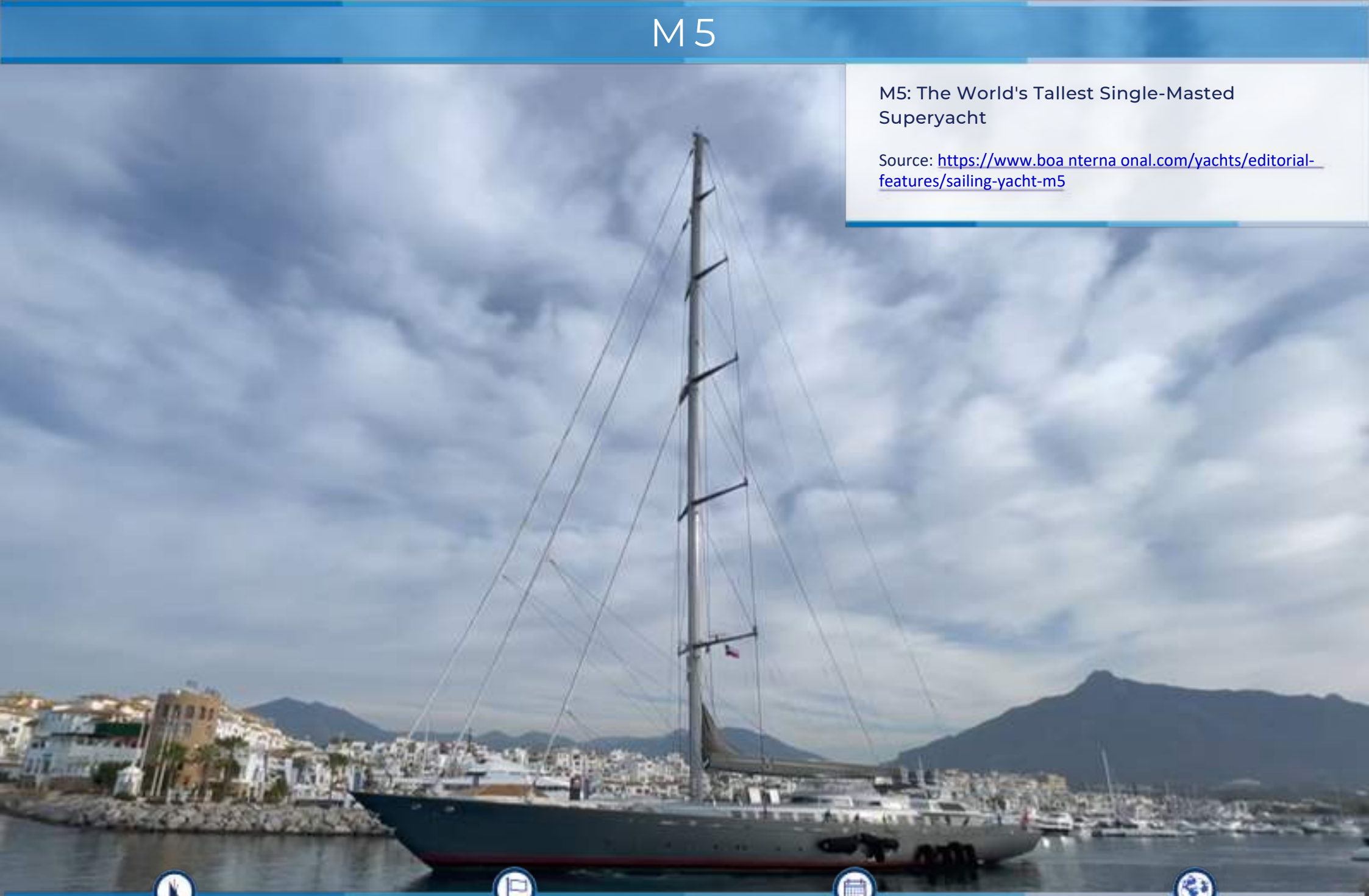
2020

EE .UU.

M 5

M5: The World's Tallest Single-Masted Superyacht

Source: https://www.boa nterna onal.com/yachts/editorial-features/sailing-yacht-m5



VELERO

CAYMAN ISLANDS

2017

EE .UU.

BOURBON OCEANTEAM 101



PLATFORM SUPPLY VESSEL	PANAMA	2016	SINGAPUR

BM JOSAMO



CONTAINER CARRIER

PARAGUAY

2015

PARAGUAY

BM TEHIA



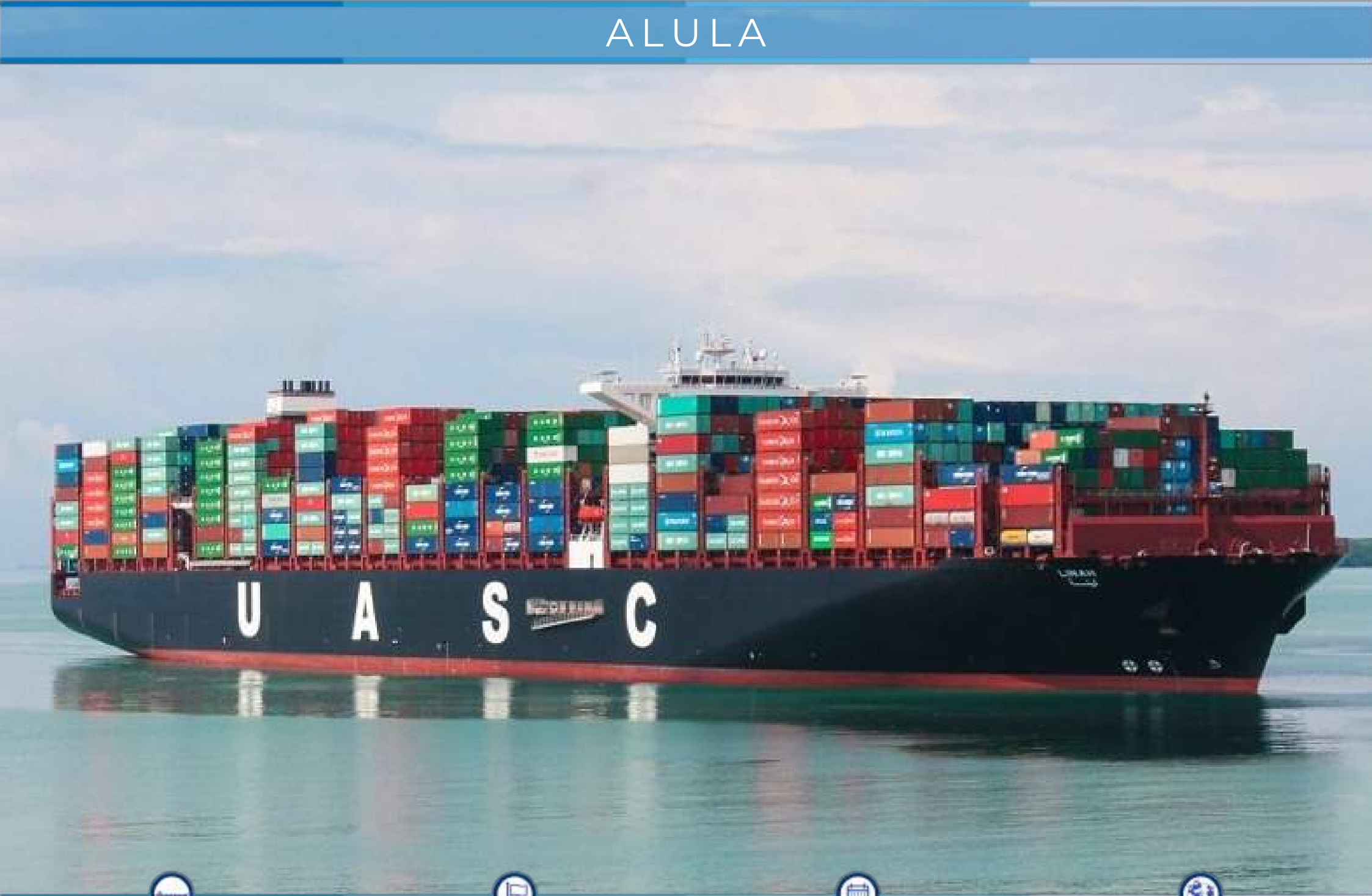
CONTAINER CARRIER	PARAGUAY	2015	PARAGUAY

BM ROSA



CONTAINER CARRIER	PARAGUAY	2015	PARAGUAY

ALULA



BUQUE
CONTAINER CARRIER

MALTA

2020

UNITED ARAB
EMIRATES

With a presence in more than 70 countries.



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