

Watching Waves

BUSY SINGAPORE PORT ADDS SENSOR TECHNOLOGY TO ENSURE SAFE BERTHING



Out of Sight, Out of Mind

In today's global economy, the shipping industry serves as a silent partner to connect businesses and customers around the world. According to the International Maritime Organization (IMO), over 90% of trade is transported via sea. ¹

The vast majority of the food we eat, clothes we wear, and devices we use in daily life spent time on a ship.

Attracting over 130,000 vessels annually, the city-state of Singapore offers a glimpse behind the curtain into the shipping community. ²

Since the arrival of Sir Thomas Stamford Raffles in 1819 - and his successful effort to establish a trading post for the British East India Company - Singapore has developed into a thriving economic hub for Southeast Asia.

This development is attributed to the area's strategic location for commerce, sitting squarely at the mouth of the Malacca Strait where 40% of all maritime traffic passes each year. ³ Ultimately, Singapore has some of the busiest ports in the world and is at the intersection of trade between 120 different countries, plus. ⁴

MORE INFORMATION

Visit: www.sea-landtech.com.sg

SOURCES

1. IMO (International Maritime Organization), <https://business.un.org/en/entities/13>
2. MPA Singapore (Maritime and Port Authority of Singapore), <https://www.mpa.gov.sg/web/portal/home/maritime-singapore/introduction-to-maritime-singapore/facts-and-trivia>
3. The Economist, <https://www.economist.com/blogs/economist-explains/2015/03/economist-explains-23>
4. MPA Singapore (Maritime and Port Authority of Singapore), <https://www.mpa.gov.sg/web/portal/home/maritime-singapore/introduction-to-maritime-singapore/facts-and-trivia>
5. MPA Singapore (Maritime and Port Authority of Singapore), <https://www.mpa.gov.sg/web/portal/home/maritime-singapore/introduction-to-maritime-singapore/facts-and-trivia>
6. Marine Insight, <https://www.marineinsight.com/know-more/10-worlds-biggest-container-ships-2017>



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A Focus on Efficiency & Safety

With the large volume of cargo vessels relying on the country's ports, the Maritime and Port Authority of Singapore (MPA) has the challenging task of managing the safe and efficient operation of surrounding waterways.

While the average consumer may not spend much time considering how goods arrive at their doorstep, behind the scenes agencies like the MPA are intimately involved with the logistics.

Per the MPA, there are approximately 1,000 ships in Singapore at any given moment, with a ship arriving or departing every two to three minutes. The agency's Port Operations Control Centre monitors vessel traffic for up to 10,000 ships, ensuring cargo is delivered in a timely manner, on schedule, and as safely as possible.⁵

This is no simple undertaking, especially considering the size and scale of container ships are exponentially growing in size, some reaching nearly 400 meters in length thanks to growing pressure to maximize shipping volume.⁶

shrunk dramatically. Now Terrebonne's fishing villages and parish seat of Houma look storms directly in the eye.

Meeting The Challenge

Agencies like MPA must rapidly evolve to stay ahead of these developments. In recent years, they have adopted technology to assist vessel captains in navigating Singapore waters - technology to help locate safe ports to anchor and berth.

Water current and wind velocity are both critical factors in piloting vessels, so a protocol was developed to install a water current and wind monitoring network to provide real-time data to captains.

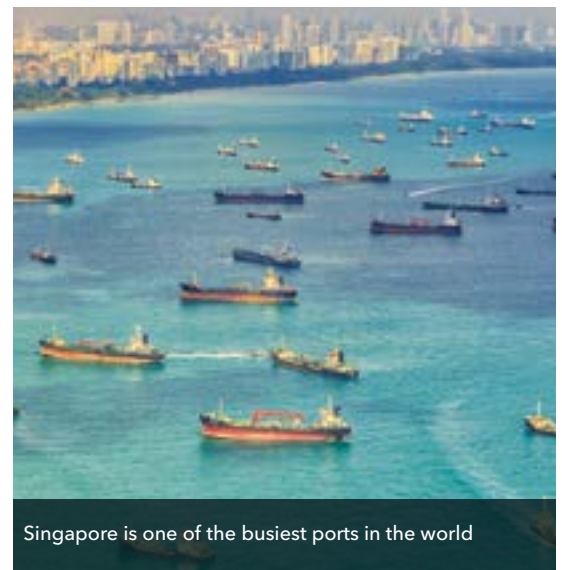
In conjunction with Hyundai Engineering, a specialized team of technology experts from Sea and Land Technologies Pte Ltd supplied a SonTek SL-500 sensor to provide real-time data collection for current speed and direction in Singapore.

With integrated pressure readings, the SL-500 also calculates wave-height and period, which is additional information to help ensure a ship's safe arrival.

This high accuracy sensor was paired with YSI's Storm3 data logger to record and transmit meteorological data to the MPA Operations Control Centre via cellular modem. From there, this information is used to provide alerts when port conditions are unsafe and can be accessed by anyone with internet access.



Pulau Tekong island offered the best monitoring site



Singapore is one of the busiest ports in the world



Installing a Storm3 Data Logger into a HydroMET system



Installing a SonTek SL500 instrument which transmits changing level and velocity data to the HydroMET station.



The real-time data dashboard used to alert operators of rapidly changing, potentially dangerous conditions.

Keeping up with Demand

As both sensor and information technology continue to evolve in coming years, ports and harbors will begin to rely more and more on real-time meteorological data for decision making.

Optimizing port operations will remain a fundamental mission for the Maritime and Port Authority of Singapore and its contemporaries around the world.

As long as consumers continue to demand faster delivery of goods, the shipping industry will continue to deploy new strategies to move items from point A to B even faster (and safer).

About Sea and Land Technologies

Established in 1994, Sea and Land Technologies has been synonymous with Supply and Support of high technology products and services designed for the fields of marine/land survey and both commercial and military diving in the ASEAN region.

Over the years, we have acquired expertise in servicing the requirements of the user community working in the areas of Oceanography, Hydrography, Geophysical/Seismic, Meteorology, Hydrology, Coastal Monitoring and Environmental studies.

Our unquenchable desire to move ahead with the times and keep ourselves abreast with the latest technology has catapulted us to be in the forefront, excelling in delivering customized services to our clientele.

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