



Ports to fuel the future

In this edition of the CSIR e-newsletter, we focus on recent research, development and innovation related to ports. The featured work was primarily conducted by researchers and engineers from the CSIR's research groups for coastal engineering, ports infrastructure, coastal systems and Earth observation.

South Africa boasts eight commercial seaports along its 2954 km-long coastline, while the rest of Africa encompasses a 26 000 km-long coastline housing over 100 ports and harbours. However, only a select few of these 100 ports can efficiently handle substantial cargo and container traffic.

Ports play a pivotal role in global trade, serving as vital gateways between countries providing infrastructure and services for the transportation of goods and raw materials.

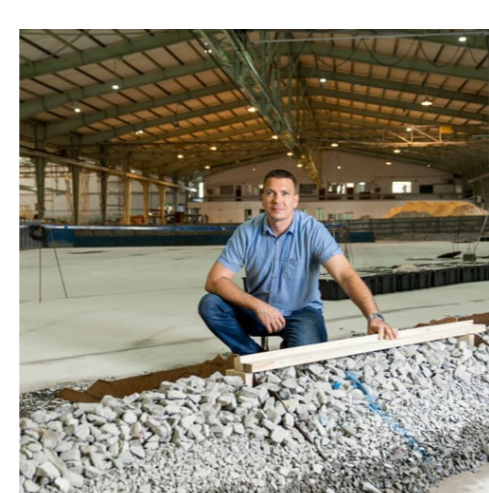
We invite you to read about some of the CSIR's work in coastal engineering and port infrastructure, as well as meet the next generation of port and coastal professionals at the CSIR.



Ports authorities around the world can now benefit from a new vessel motion forecast tool

A new CSIR-developed tool can predict the motion of moored ships in a port, for both current wave conditions and forecasted wave events, contributing to operational efficiency and port safety.

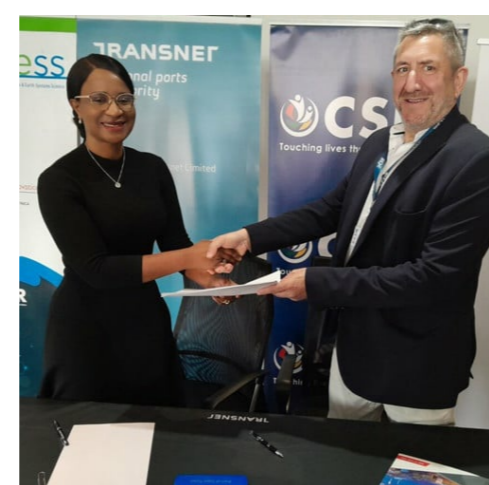
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CSIR research helps to understand the behaviour of a new SA-designed artificial concrete armour unit

Coastal engineers worldwide continuously strive to develop better designs for more effective protection of coastal infrastructure. The CSIR was instrumental in testing a new South African-designed concrete armour unit shape, which may one day become as famous as one of its well-known counterparts, the dolos.

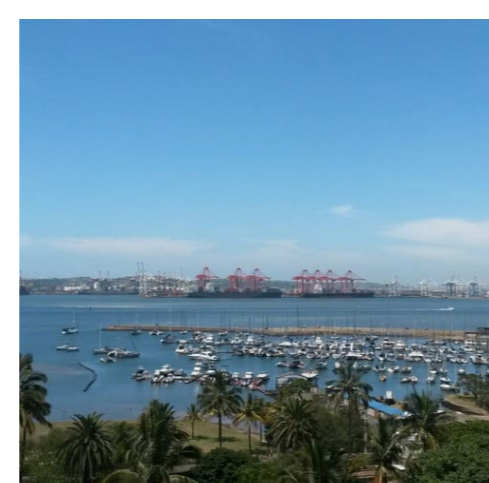
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Agreement to help understand impact of wind disruption on Cape Town port operations signed

Gusting winds in Cape Town are not a new problem; however, they are a persistent problem at one of the busiest ports in South Africa where, anecdotally, the frequency and intensity of the wind, and associated environmental conditions, are an ongoing challenge.

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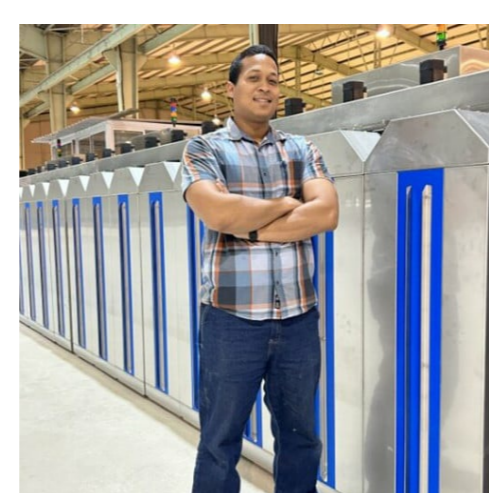


CSIR helping build Africa's blue economy through green ports

CSIR have contributed to finding innovative ways of integrating engineering and environmental principles to support the long-term sustainability of African ports, developing and disseminating tools for green port development and operation.

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Meet some of our young ports and coastal researchers



Rosco Platen: Constructing physical models for port studies

Exciting projects are always in the pipeline at the CSIR's Coastal Engineering and Port Infrastructure Model Hall in Stellenbosch. The facility, which boasts the title of being the largest physical hydraulic modelling facility in the southern hemisphere, is home to Rosco Platen and his colleagues.

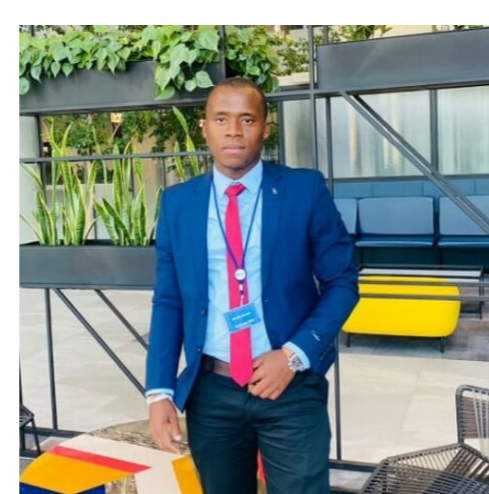
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Vuyo Ndayi: Making technology and innovation important at the ports

Vuyo Ndayi combined his love for his environment and for all things engineering to first train as a marine instrumentation technologist, and to now work as a meteocean and marine instrumentation engineer for the CSIR Coastal Engineering and Ports Infrastructure group in Stellenbosch.

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Mlungisi Gumede: Passionate about the economy of ports

Hailing from KwaZulu-Natal, Mlungisi Gumede is a CSIR researcher who is currently pursuing a Master of Commerce Management through the University of KwaZulu-Natal. His Master's degree is funded by the National Research Foundation (NRF) and his research project, which is overseen at the CSIR, focuses on one of the country's busiest ports.

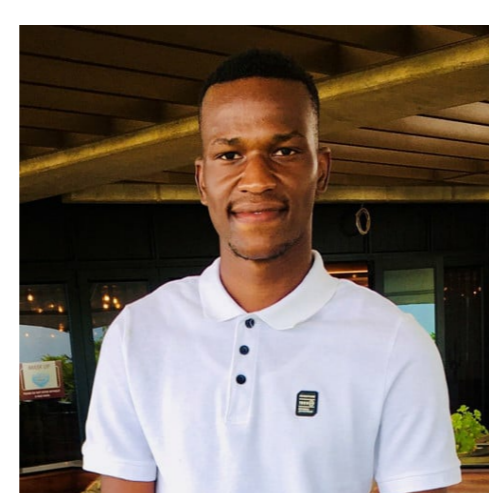
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Benjy Oliver: Modelling wave energy to transform our ports

The young oceanographer applies mathematical modelling and numerical simulation to study the power of wave energy from the ocean and how it impacts the seaport and maritime industry.

[Read more](#)



Khangele Khuthadzo: From Vuwani to Cape Town – studying the impact of wind extremes on the city's port

Is the Port of Cape Town becoming windier? Answering this question is the task of Khangele Khuthadzo, a young PhD candidate who is dedicated to developing the climatology and providing future projections of the wind field over Cape Town, South Africa.

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