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Funded by
the European Union



2021
2030 United Nations Decade
of Ocean Science
for Sustainable Development



MERCATOR
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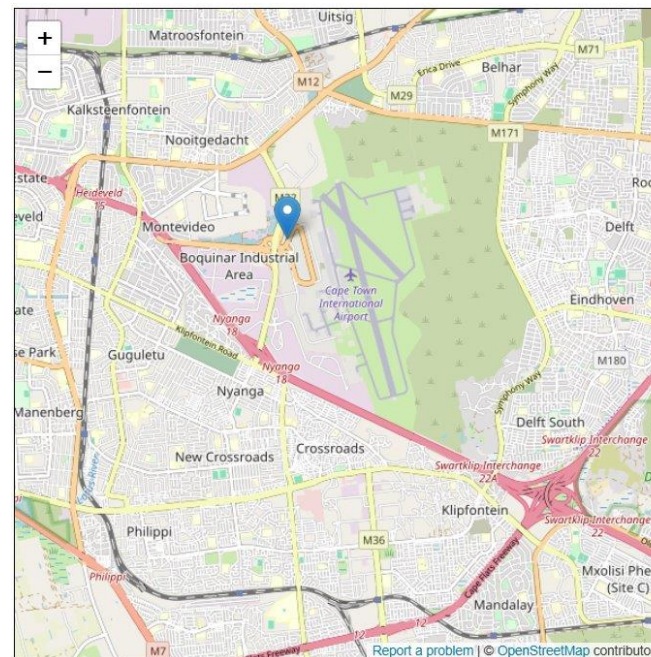
South African Weather Service

Department/Service: Marine Services

Ministry in charge (if applicable): DFFE

Website: <https://www.weathersa.co.za/>

Country: South Africa



South African Weather Service



Consultation Workshop | April 2025

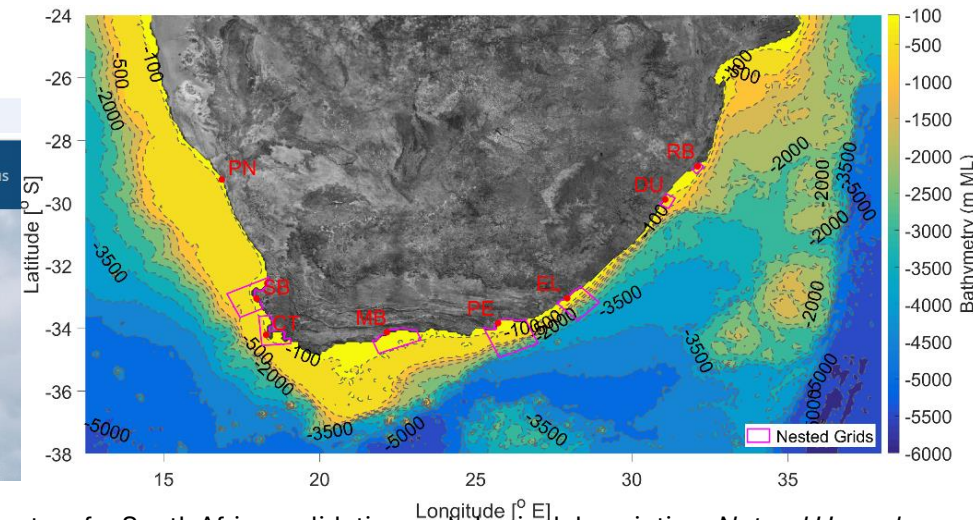
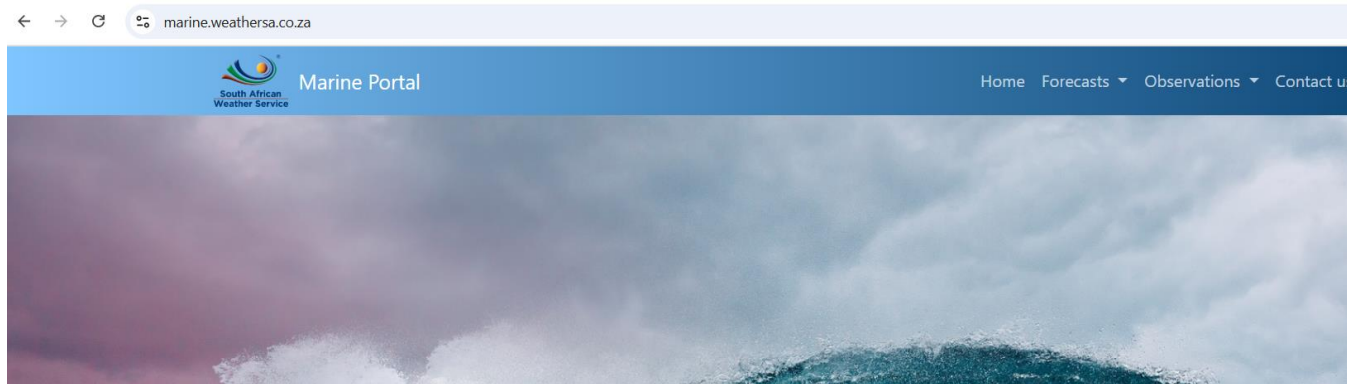


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Description of the ocean forecasting system

- Name of the system: **SAWS Waves and Storm Surge**
- Type of system: **wind, wave & swell, storm surge**
- Start of operation of the system: **2020**
- System website (if available): <https://marine.weathersa.co.za/>
- Describe your data sharing policy: **Data is provided for personal, research, educational, or business use, depending on the agreement. Requests for data or products which are to be utilized for commercial gain shall carry a fee.**



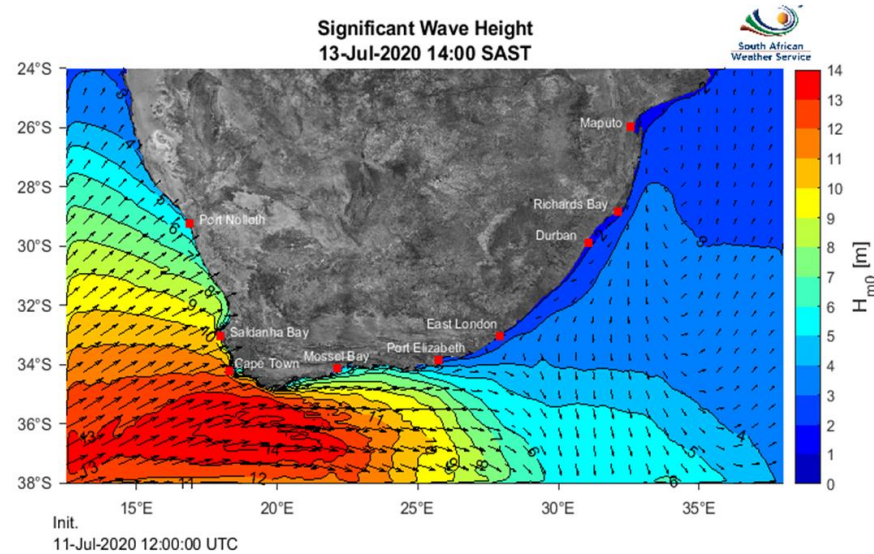
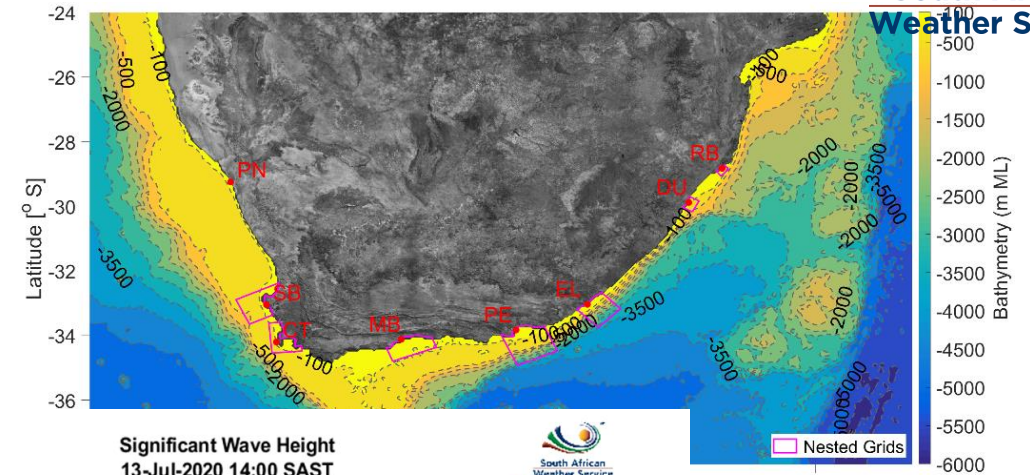
Rautenbach, C., Daniels, T., De Vos, M. and Barnes, M.A. (2020). A coupled wave, tide and storm surge operational forecasting system for South Africa: validation and physical description. *Natural Hazards*

Technical description



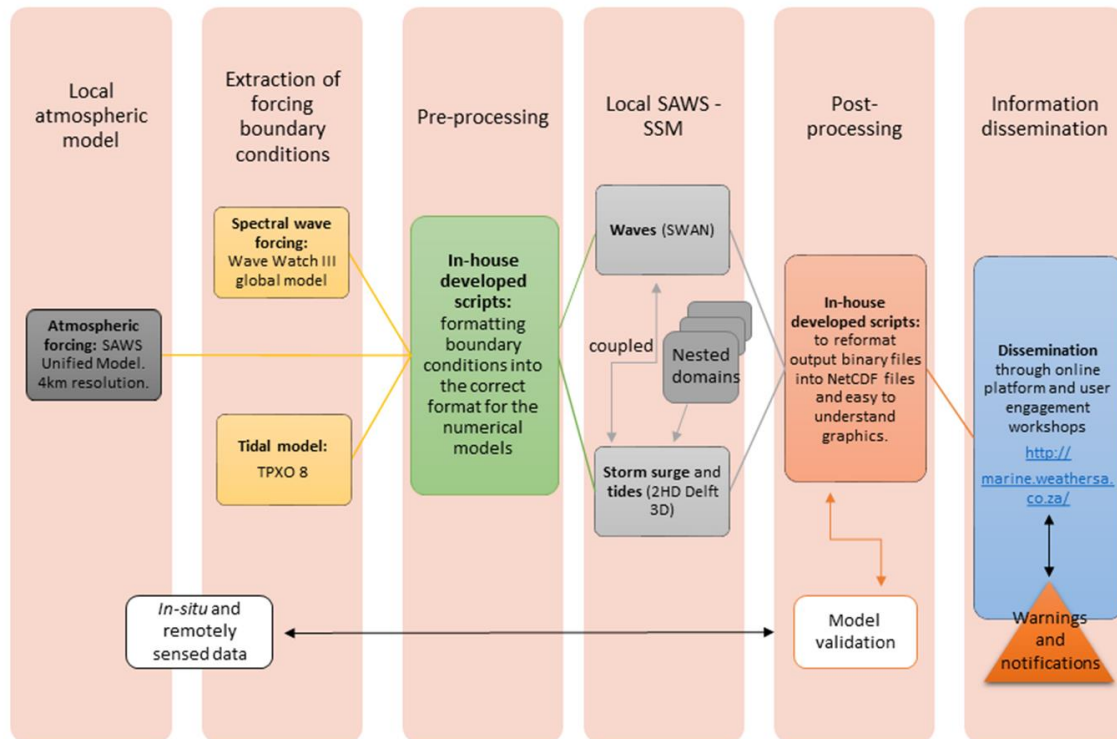
South African
Weather Service

- Model employed: **Delft3D**
- Resolution: **6km regional domain**
2 km nested domains
- Forcings: **4.4 km Unified Model (UM)**
25 km GFS: WaveWatch III
- Forecast horizon: **72-hours**



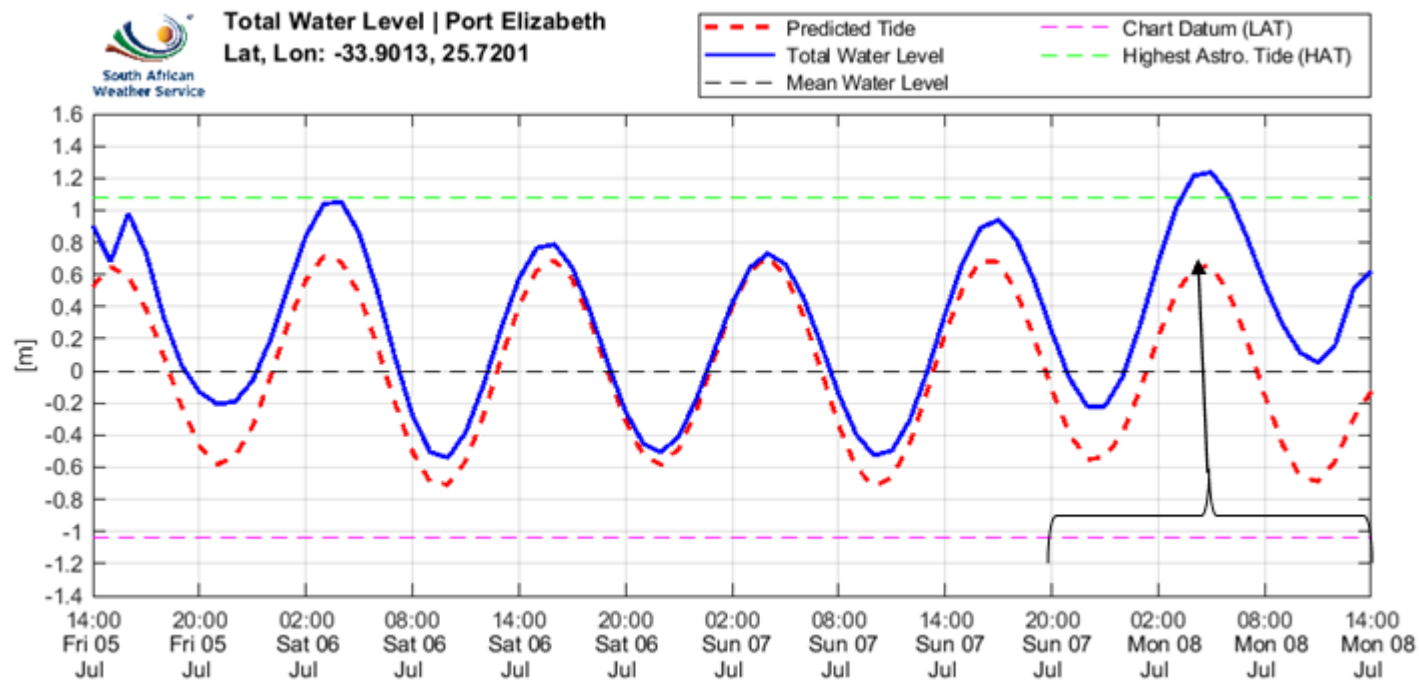
Technical description

Operational SWaSS Protocol



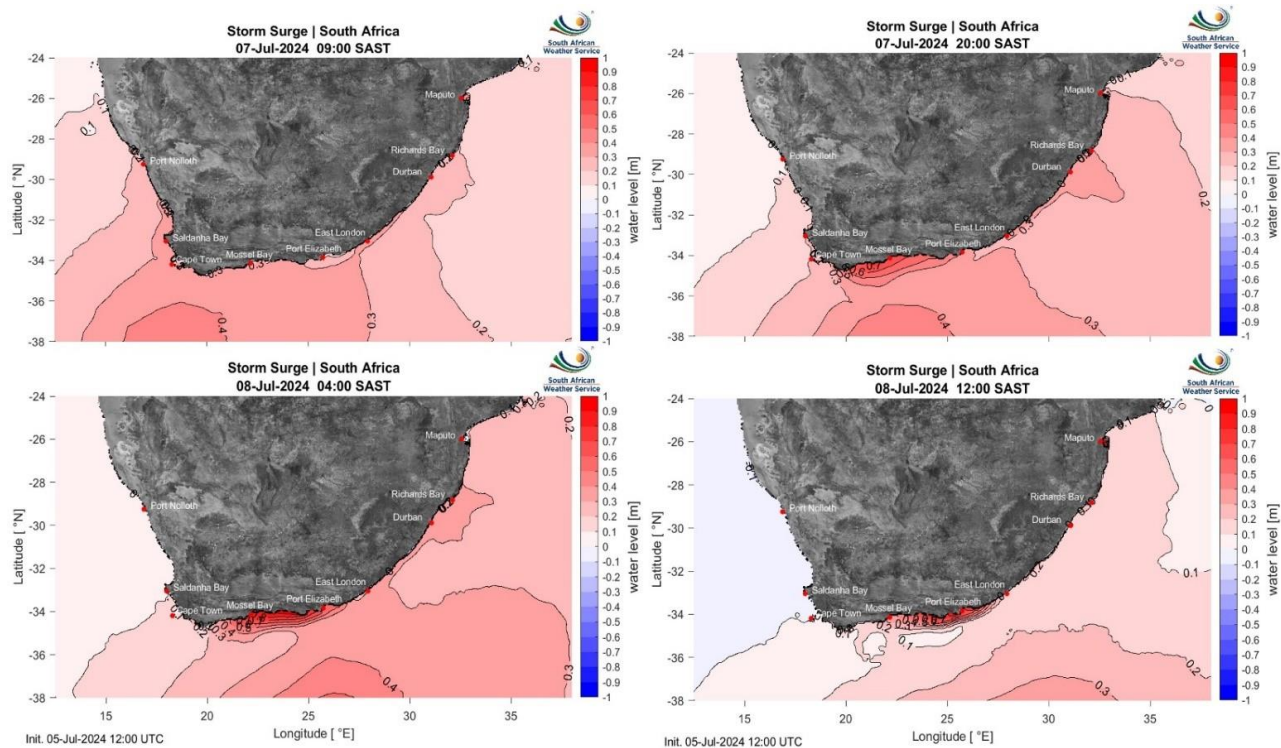
Description of system results

- Successful storm surge forecast in 2024



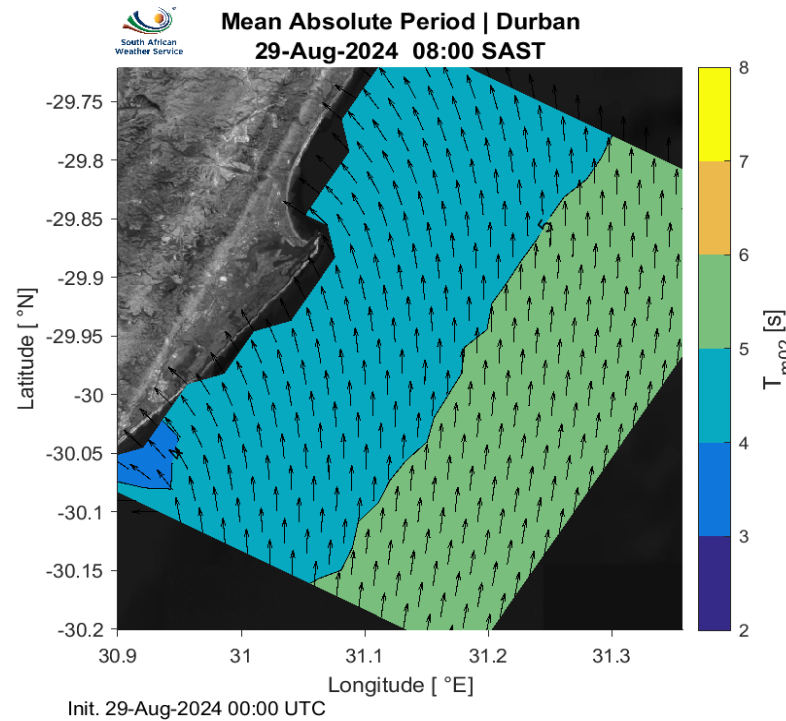
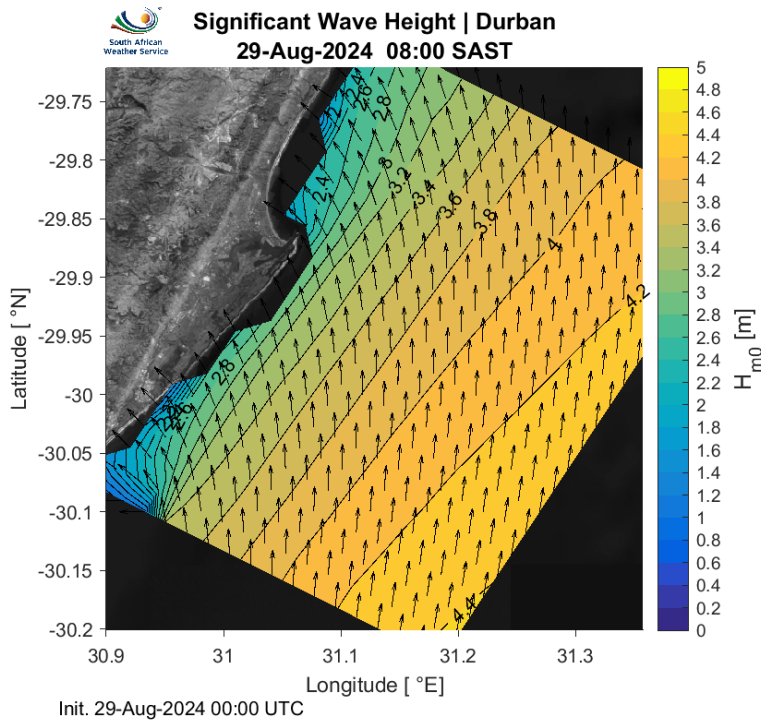
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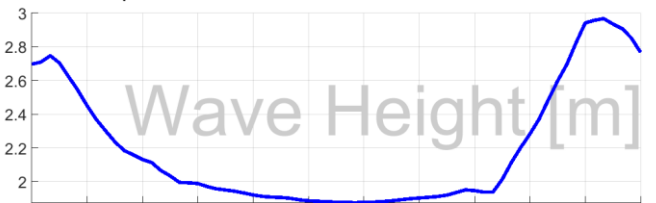


System results

Waves – Nearshore



Custom port forecast Durban: RP1



System validation

Natural Hazards

<https://doi.org/10.1007/s11069-020-04042-4>

ORIGINAL PAPER



A coupled wave, tide and storm surge operational forecasting system for South Africa: validation and physical description

Christo Rautenbach^{1,2,3}  · Tania Daniels^{1,4} · Marc de Vos^{1,3} · Michael A. Barnes^{1,5}

Received: 28 October 2019 / Accepted: 1 May 2020

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Applications

- Application areas: Meteorological services for public forecasting and specialised port services, the DRR team, and researchers.
- Main users: Meteorological Services, DRR Team, Researchers.

Specific examples of application

SOUTH AFRICA

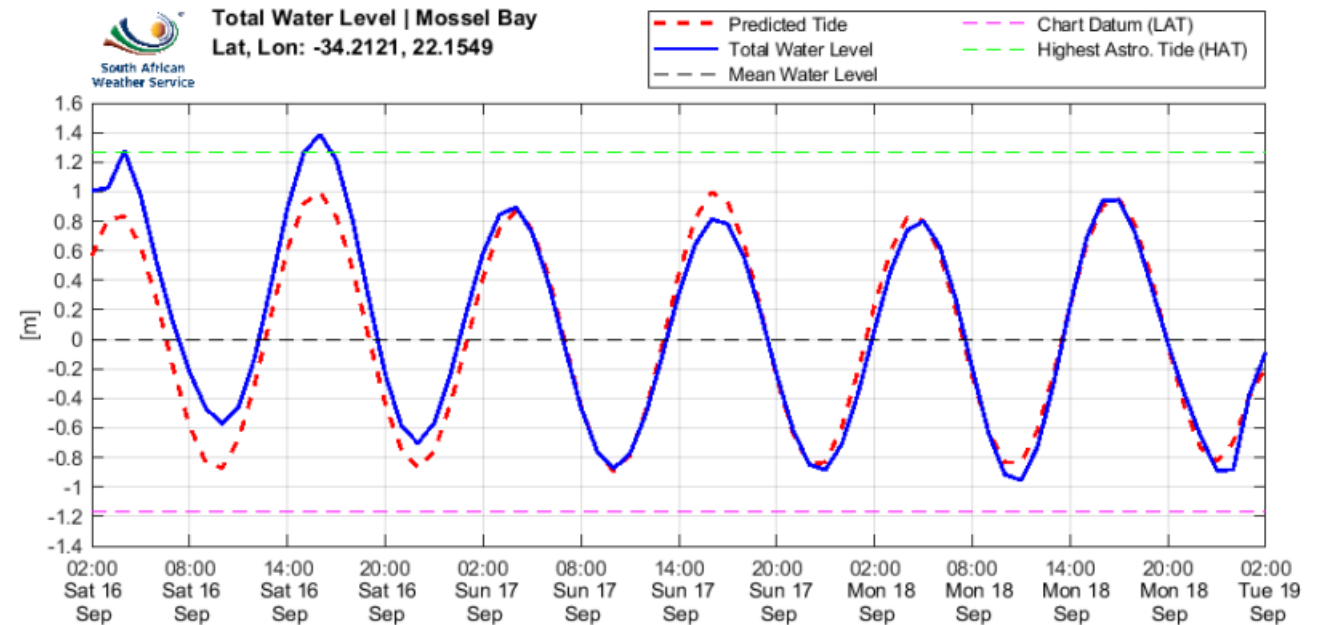
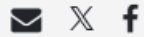
Storm surge wreaked havoc in coastal areas, expected to subside on Monday

17 September 2023 - 18:43



Kgaugelo Masweneng

Deputy Opinions Editor: TimesLIVE



Other Systems

- Describe the plans for evolution of your system: **Expand to cover the Mozambican and Namibian coastlines**
- Limitations/challenges: **A lack of near real-time data presents a limitation for the continued validation of water levels.**