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OCEAN PREDICTION  
ENHANCEMENT IN  
REGIONS OF AFRICA

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2021  
2030  
United Nations Decade  
of Ocean Science  
for Sustainable Development



**MERCATOR  
OCEAN**  
INTERNATIONAL

# National Institute of Meteorology (INAM)



Department/Service: Weather Forecasting Division

Ministry in charge (if applicable): Ministry of Communications and Digital Transformation

Website: <https://www.inam.gov.mz>

Country: Mozambique



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# Description of ocean forecasting system



- **Name of the system:** *National Coastal Forecasting System for Mozambique (FEWS-INAM).*
- **Type of system:** *Forecasts include wave height, period and direction; tide and surge water levels; wind speed and direction; cloud cover, precipitation, air temperature and air pressure.*
- **Start of operation of the system:** 2020
- **System website:** <https://oss.deltares.nl/web/delft-fews/-/national-coastal-forecasting-system-for-mozambique-fews-inam->
- **Data sharing policy:** *Forecasts are distributed, free of charge, to nearly 200 recipients from various organizations in Mozambique, including ports, fishing communities, NGOs, and consultants. The authorities of the three largest ports in Maputo, Beira and Nacala use the forecasts in their daily operations.*



# Technical description

- **Model employed:** FEWS-INAM was jointly developed by INAM and Deltares as part of a technical assistance project financed by both the Nordic Development Fund and World Bank Group.
- **Resolution:** 250x250m
- **Forcings:** FEWS-INAM imports global forecasts from several sources. Meteorological forecasts are obtained from the NOAA Global Forecast System (GFS) and wave parameters (significant wave height, peak period, and direction) from NOAA WAVEWATCH III (WW3). Water levels relative to mean sea level and storm surge forecasts are provided by the Deltares GLObal Storm Surge Information System (GLOSSIS) via an FTP. Four regional wave models are run every 12 hours using the three global forecasts for boundary conditions. Five detailed wave models are run on the same cycle with boundary conditions from the regional models. Twice a day, at 7am and 7pm, several reports are delivered to email and text message recipients.
- **Forecast horizon:** FEWS-INAM provides 3-day ocean and meteorological forecasts in the form of daily forecast bulletins and text messages to enhance coastal and navigation safety. Forecasts include wave height, period and direction; tide and surge water levels; wind speed and direction; cloud cover, precipitation, air temperature and air pressure.

# Description of system results

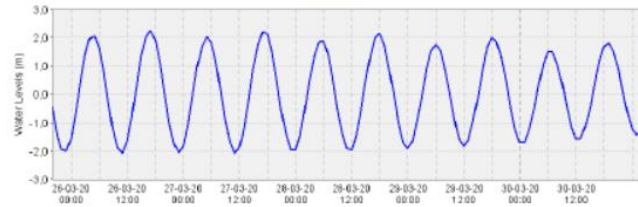


## Previsão Detalhada para Cidades

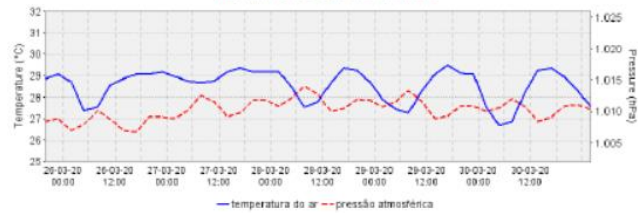
### Pemba

Export date: 25/03/2020 19:00 GMT+2

#### Nível de água

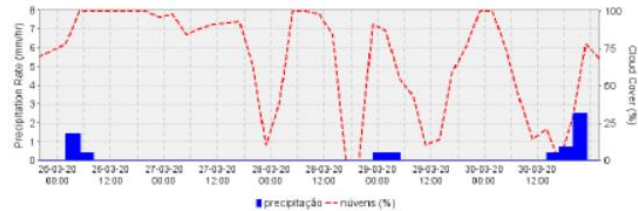


#### Temperatura do ar e pressão atmosférica



— temperatura do ar — pressão atmosférica

#### Precipitação e nuvens (tração)



■ precipitação — nuvens (%)

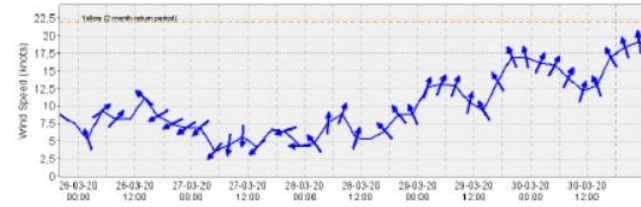
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T0, NOAA GFS: 25/03/2020 02:00 GMT+2  
T0, WaveWatch III: 25/03/2020 02:00 GMT+2  
T0, GLOSSIS: 24/03/2020 20:00 GMT+2



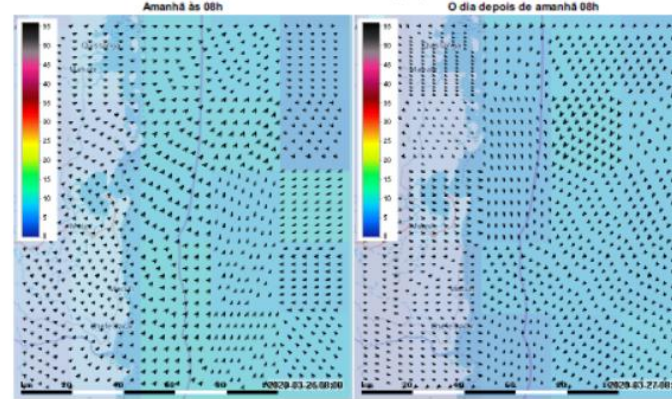
### Pemba

Export date: 25/03/2020 19:00 GMT+2

#### Velocidade do vento (nós)



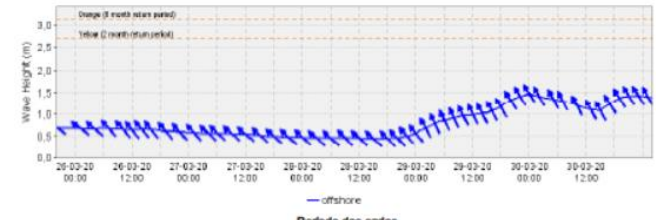
#### Velocidade do vento (nós)



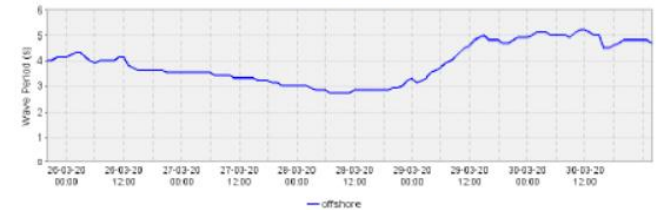
### Pemba

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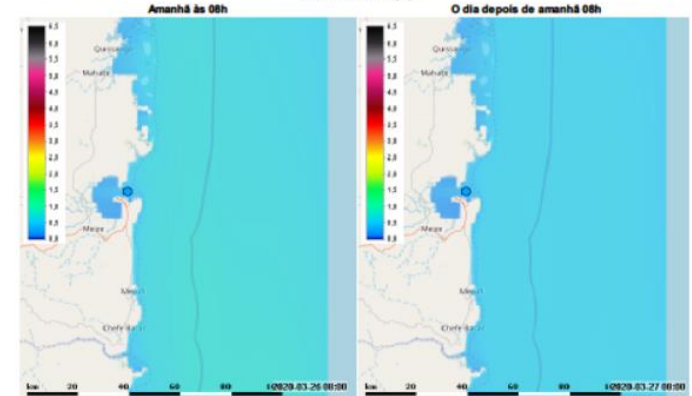
#### Altura das ondas



#### Período das ondas



#### Altura das ondas (m)



\* Este sistema operacional piloto está a ser implementado e calibrado em 2018-2020. Estas previsões preliminares deverão ser usadas com cautela.  
Contactos: [ncardosmz@gmail.com](mailto:ncardosmz@gmail.com), [paio.rago@silmaris.nl](mailto:paio.rago@silmaris.nl)

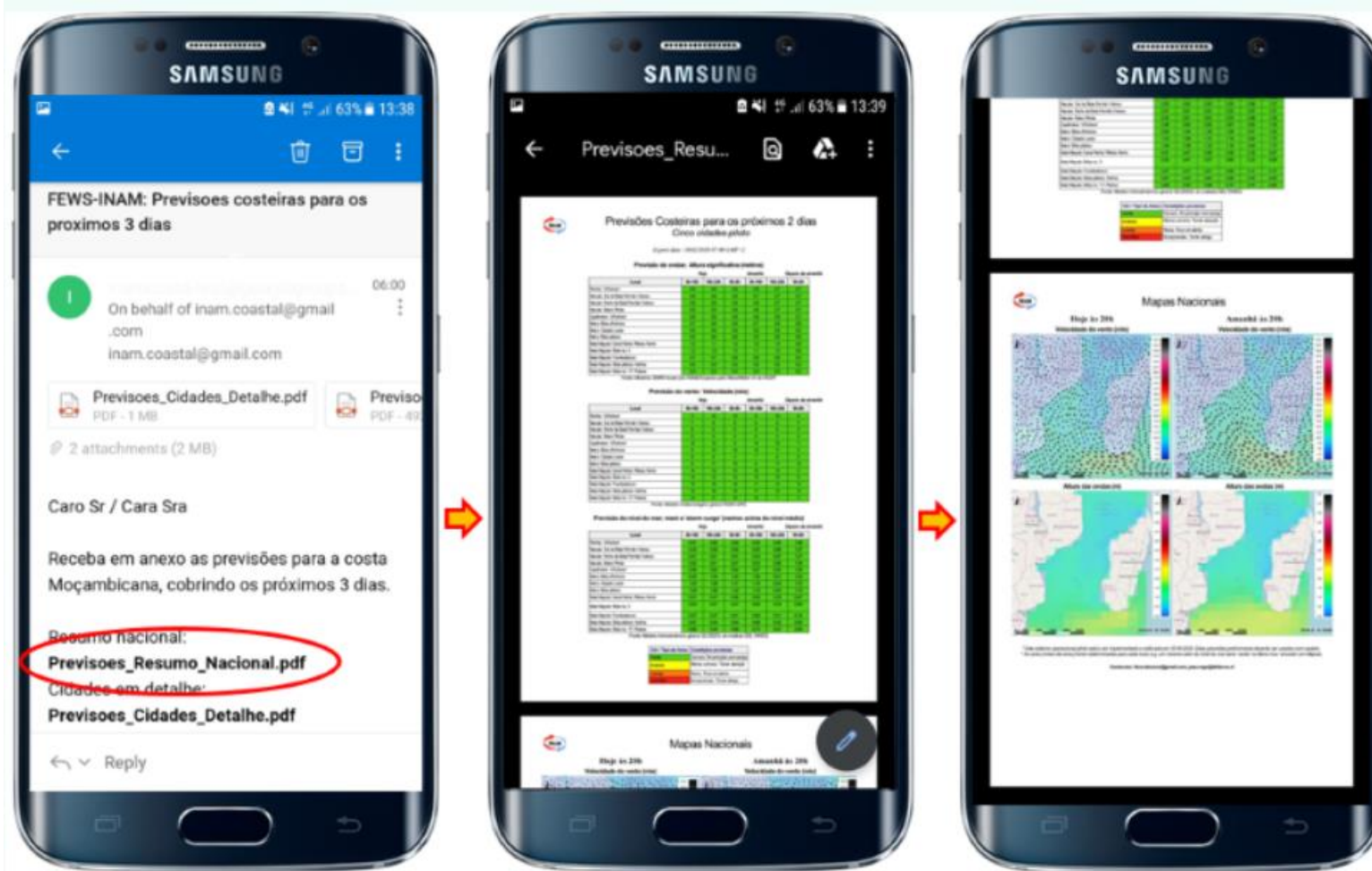


# Applications

*National Summary Bulletin  
viewed on a mobile device.*



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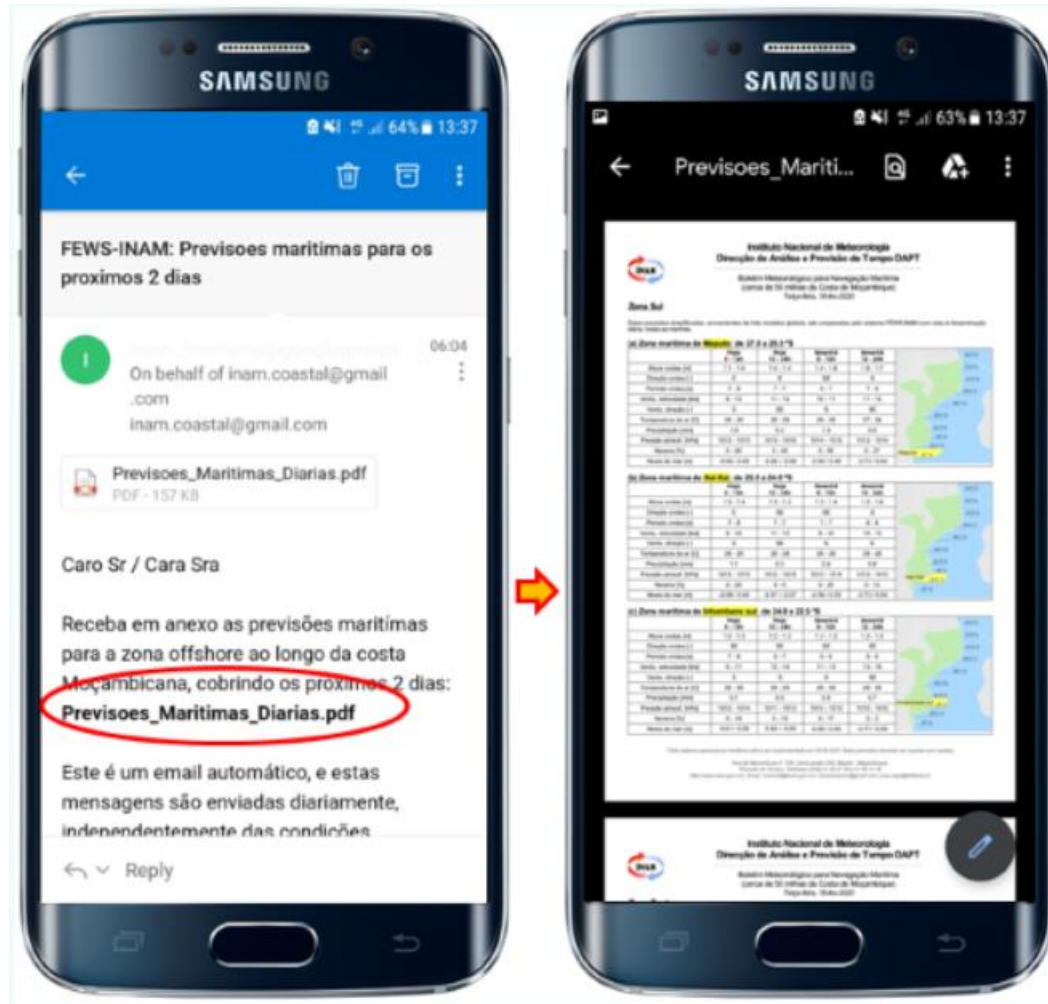
# Applications

*Detailed Cities Bulletin,  
selected screenshots viewed on  
a mobile device.*



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# Applications



*Maritime Bulletin: example of first page.*

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# Limitations and challenges



Establishment of Marine Forecasting Department; Improvement of computational capacity; Increased human resources capacity building

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