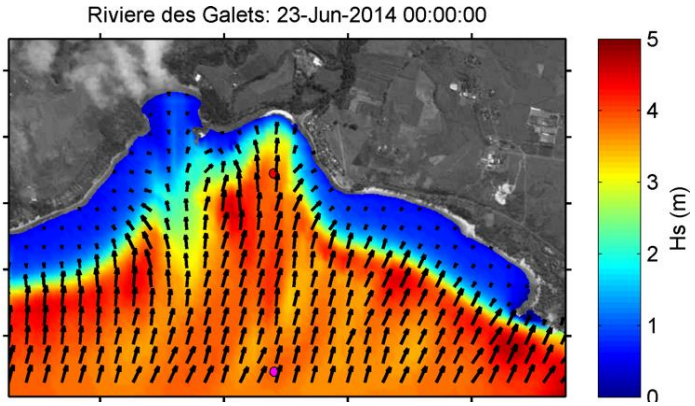
COASTAL ADAPTATION MEASURES FOR RIVIÈRE DES GALETS

RIVIÈRE DES GALETS, MAURITIUS



(clockwise from left) The failing sea defences; numerical model output from an extreme wave event and the new revetment and wave-return parapet wall under construction in August 2018.

INFO:

Location: Rivière des Galets, Mauritius

Client: Mauritius Ministry of Environment and Sustainable Development, United Nations Development Program (UNDP)

Project Date: 2014-2016

SCOPE OF SERVICES:

- Literature review, historical analysis
- Field data collection and analysis
- Oceanographic analysis
- Coastal hazard assessment
- Coastal structure design
- Preparation of construction design drawings and tender documents

PROJECT DESCRIPTION:

Rivière des Galets, located on the southern coast of Mauritius, is affected by coastal flooding due to overtopping of the existing coastal defences during large wave events. A review of these events determined that they had been caused by strong, long-period swells from the south and not by cyclone events.

With accelerating sea level rise (SLR), the overtopping and resulting inundation will become more frequent, and eventually, the village may need to be relocated. However, such measures require years of planning and significant funds to identify, purchase and develop the relocation site – time and budget that were not available for this project. Therefore, the immediate options to address the impacts of SLR in the next 20 – 50 years focused on 'buying time' to ensure the safety of the residents of the seafront properties at Rivière des Galets.

For this reason, we designed a robust rock revetment to replace the failing coastal defences that existed above the eroded beach. The design process involved the collection of wave and water level data for calibrated numerical modelling of wave conditions, a detailed wave runup and overtopping analysis and the sizing of appropriate rock armour and a concrete parapet/wave return wall. As part of their brief, we also delivered a full set of construction drawings and tender documents so the project could move forward into the implementation phase.