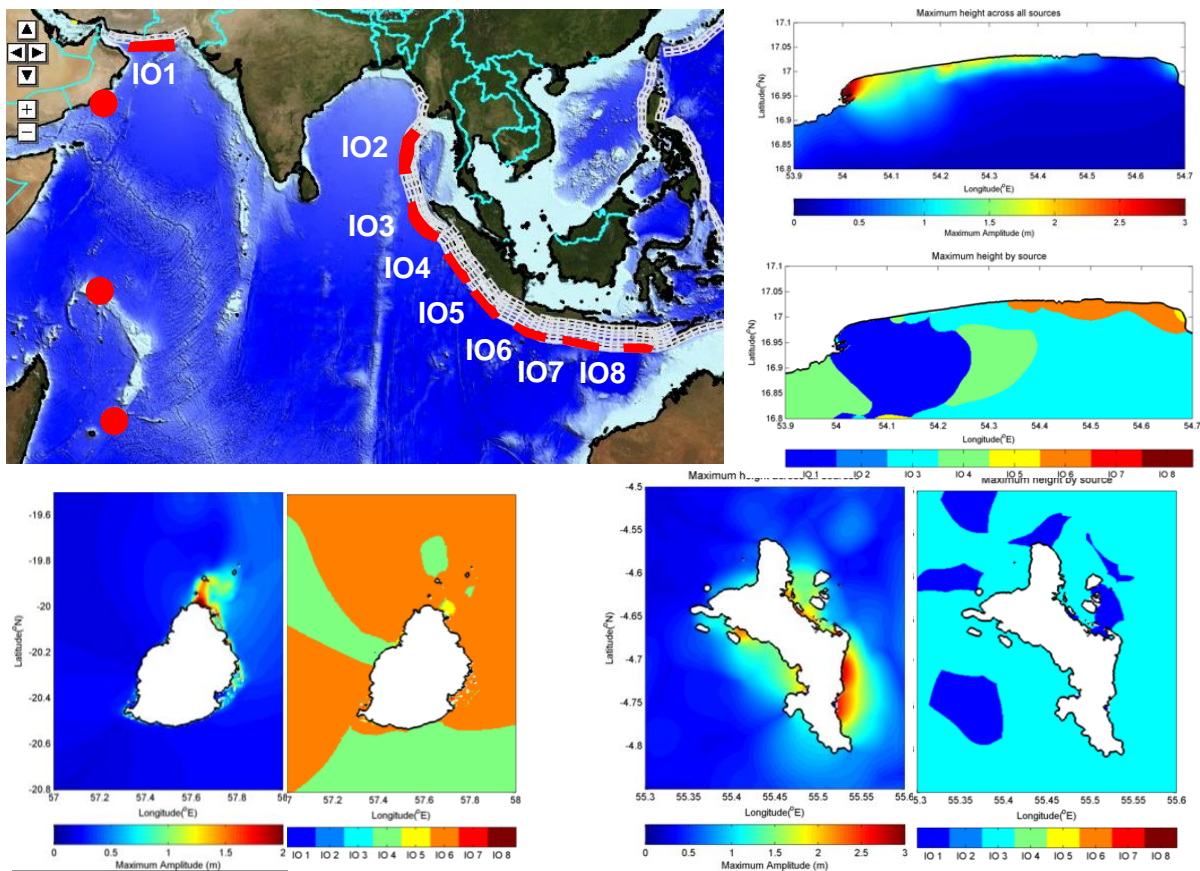


TSUNAMI HAZARD IN INDIAN OCEAN PORTS

PORT LOUIS, MAURITIUS; VICTORIA, SEYCHELLES; SALALAH, OMAN



(top left) Locations of the three study sites and the eight sources used for the hazard analysis. **(top right)** Maximum modelled tsunami amplitude (upper) and which source was responsible for that maxima along the southern coast of Oman **(bottom left, right)** Maximum modelled tsunami amplitude (left) and which source was responsible for that maxima around Mauritius and Mahé, Seychelles.

PROJECT INFORMATION:

Location: Indian Ocean
Client: N/A Research Only
Project Date: 2017

SCOPE OF WORK:

- Review of historical tsunami events
- Multi-scenario sensitivity testing
- Comparative Hazard Analysis

PROJECT DESCRIPTION:

During the great Indian Ocean tsunami of 2004, three ports in the Indian Ocean were strongly affected by tsunami induced currents. This under-appreciated phenomenon was significant because none of the sites (Salalah in Oman, Le Port in Reunion Island, and Toamasina in Madagascar) experienced any damaging inundation, yet ships were nevertheless torn from their moorings and set adrift, sometimes hours after tsunami arrival, presenting a serious problem for emergency management and port operations.

This study explored the tsunami effects from the 2004 event with particular emphasis on Salalah, Oman where we also investigate how significant modifications to Salalah's layout since 2004 would affect the distribution and intensity of tsunami currents in the Port. The study then uses a sensitivity analysis approach to assess the potential for tsunami induced currents at other ports in the Indian Ocean including Mahé, Seychelles and Port Louis, Mauritius. In each case, we identify which source regions contribute most to the tsunami hazard at each site. We also assess each individual port in terms of its layout showing areas of vulnerability to tsunami currents. The model results are then related to existing probabilistic analyses for tsunami wave heights providing a first order probabilistic assessment of tsunami currents at these locations.

[Link](#) to the full paper