

Wind action and its adverse effects on operations of South African harbours

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ABSTRACT:

All South African harbours are exposed to large-scale frontal/strong synoptic weather events and some also experience, less frequently, short duration convective activity. These often result in operational stoppages, delays in loading/unloading processes and occasionally damage to infrastructure, vessels and cargo or even loss of life or limb. This paper provides an overview of critical aspects of adverse wind actions, the importance of wind data capturing and processing. The relevance of wind-tunnel modelling is highlighted in terms of the optimal positioning of harbour facilities as well as the loading aspects of various elements of infrastructure (e.g. vessels with variable cargo configurations, large equipment/cranes). Realistic types of remedial measures and the rates of possible improvements are considered. The information was derived on the basis of long-term research projects related to two prominent South African harbours: the well-established Port of Cape Town and, recently inaugurated Ngqura (Coega).