



CASISAC – Changes in the Agulhas System and its Impact on Southern African Coasts

Matthias Hirt (1), Sönke Dangendorf (1), Jessica Kelln (1), Jürgen Jensen (1), Arne Biastoch (2), and Sara Santamaria-Aguilar (3)

(1) Research Institute for Water and Environment (fwu), Dept. of Hydraulic and Coastal Engineering, University of Siegen, (matthias.hirt@uni-siegen.de), (2) GEOMAR Helmholtz Centre for Ocean Research, Düsterbrooker Weg 20, 24105 Kiel, Germany, (3) Institute of Geography, University of Kiel, Ludewig-Meyn-Str. 14, 24098 Kiel, Germany

The Agulhas Current, which transports warm and saline water from the Indian Ocean to the Atlantic, is well known to influence the regional climate at the southern tip of the African continent. As a consequence of the anthropogenic climate change and increasing variability of the current, the coastal areas of South Africa were identified to be extraordinary vulnerable to climate impacts, such as droughts and flooding. The objective of the research project CASISAC (Changes in the Agulhas System and its Impact on Southern African Coasts) is to quantify the changing risk of so called 'compound-events', i.e. the mutual occurrence of high water levels, wind waves, and heavy precipitation, along the coastline of South Africa. In this presentation we provide an overview about the project with a special focus on the wave climate. To determine present-day and future changes in the regional wave climate in the South Atlantic and South-West Indian Ocean, numerical model data as well as local wave buoy data are analysed. Specifically, we develop a statistical downscaling model in order to produce the wave climate associated to the future atmospheric conditions.