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## Recent sea surface temperature trends and future scenarios for the Red Sea

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The current paper analyzes the recent trends of Red Sea Surface Temperature (SST) using 0.25° daily gridded Optimum Interpolation Sea Surface Temperature (OISST) data from 1982-2016. The results of three different GFDL (Geophysical Fluid Dynamics Laboratory) model simulations are used to project the sea surface temperature (here after called Tos) under the four representative concentration pathway scenarios through 2100. The current research indicates that the average Red Sea surface temperature is  $27.88 \pm 2.14$  °C, with a significant warming trend of  $0.029$  °C yr<sup>-1</sup>. The annual SST variability during the spring/autumn seasons is two times higher than during the winter/summer seasons. The Red Sea surface temperature is correlated with 13 different studied parameters, the most dominant of which are mean sea level pressure, air temperature at 2 m above sea level, cross-coast wind stress, sensible heat flux and Indian Summer Monsoon Index. For the Red Sea, the GFDL-CM3 simulation was found to produce the most accurate current SST among the studied simulations and was then used to project future scenarios. Analysis of GFDL-CM3 results showed that Tos in the Red Sea will experience significant warming trends with an uncertainty ranging from  $0.6$  °C century<sup>-1</sup> to  $3.2$  °C century<sup>-1</sup> according to the scenario used and the seasonal variation.

### Biography

Mohamed Elsayed Hassan Shaltout has many research activities in the field of sea level projection together with ocean modeling and different environmental issues. He has in depth knowledge of specific oceanic conditions along the Egyptian Mediterranean coast. He has completed his PhD from Alexandria University and he is a Guest Researcher in Earth Science Department, Gothenburg University, Sweden and Earth Science Department, Abdus Salam International Centre for Theoretical Physics (ICTP), Italy. He has studied climate change impacts on Egyptian coastal waters and the Mediterranean Sea and has lectured extensively on this subject. He is experienced in the use and application of remote sensing tools.

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