**Assessment of Climate Change Impacts on Sea Surface Temperatures and Sea Level Rise—The Arabian Gulf**

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**Abstract:** The Arabian Gulf is one of the regions in the world experiencing major changes due to increased economic growth rates and development practices. As a shallow water body within a hot desert, the Gulf is exposed to obvious warming in the sea surface temperatures (SST). Remotely sensed SST data were utilized to estimate decadal change in SST with a focus on coral reef locations. There is a positive trend in monthly time series SSTs, with a maximum value of about 0.7°C/decade for the western side of the Gulf. This high trend of SST is associated with significant coral reef bleaching and it coincides with major climate/ocean interactions. Most of the Arabian countries along the Gulf have coastal developments at low-land areas of high vulnerability to sea level rise. Digital elevation models showed that there are more than 3100 km2 of coastal areas that occur at 1 m level along the Arabian countries of the Gulf. Coastal protection and conservation measures are crucial to protect low-lying coasts of urban use.