

Monitoring Marine Environment based on Metrological and Physical Parameters— A Case Study on KG-PG Offshore Basin of Bay of Bengal

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Abstract—World over, petroleum and natural gas industry has recognized the importance of long-term environmental monitoring of the marine area, where exploration and production of oil and gas takes place. As an effort to explore more oil and gas, ONGC has significantly increased the exploratory drilling activity for petroleum hydrocarbons, especially from the Krishna-Godavari (KG) Basin and to assess the environmental status, ONGC made one extensive study around 20 blocks of KG-PG Basin to collect baseline data.

In order to get a synoptic understanding on the distribution of surface meteorological (wind, precipitation, air temperature, solar radiation, PAR, humidity, pressure) monthly mean data retrieved from satellite. Samplings are made around these 20 blocks from surface, middle and bottom water to measure physical parameters of Conductivity, Temperature, Depth, Suspended Solids, salinity and sechi disc depth which regulate the biological productivity in the region.

The most striking general feature evident in the distribution maps of meteorological and physical parameters is the noticeable spatial variation of these parameters in blocks located in the coastal and oceanic regions. Air temperature and humidity were lower in the coastal region in April as compared to June. Increased precipitation in May, especially in the oceanic region, was also noticed. The study region was characterized by well-organized and humid south-westerly winds with moderate precipitation/rainfall in the month of May. The vertical profiles of temperature and salinity showed relatively mixed water column in blocks in the shallow waters compared to those in the deeper waters

All the observed parameters are in normal oceanographic range and comparable to other oceans. No noticeable influence of oil exploration is observed on marine environment around the study area.