

Corrosion of Offshore Platforms off the South-East Coast of Trinidad

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Abstract

Trinidad, the most southerly island of the Caribbean, is about 5,130 km² in area, situated just about 10 kilometres from the South American mainland, northeast of Venezuela, between 10 and 11 degrees north of the equator. The oil and gas industry is the mainstay of the economy of the unitary state of Trinidad and Tobago, derived mainly from offshore fields off the south-east coast of Trinidad. In such an environment, corrosion is a significant consideration in the maintenance of the platforms. Corrosion in offshore platforms is affected by several factors – relative humidity, temperature, sunlight, wind, water velocity, salinity, pH, oxygen concentration and marine organisms. The extent and effects of each of the above are outlined but the interplay of these factors results, in a complex way, in overall corrosion rates that are difficult to predict. The platforms are made basically of structural carbon steel. Corrosion rates were determined by exposing several coupons of the same type of structural carbon steel at various locations on one of the platforms. The results indicate that the marine environment off Trinidad's south-east coast is very corrosive, comparable to other very severe marine environments in other parts of the world.