Tropical Cyclone Climatology and their Risk Assessment along Orissa Coast, East coast of India

P.K.Mohanty1, B. Mahala[2], U.S. Panda[3], B.K. Nayak[4] and G.N.Mohapatra[5]
[1]Department of Marine Sciences, Berhampur University, Berhampur- 760 007
[2]KIIT University, Bhubaneswar, Orissa
[3]ICMAM, NIOT Campus, Chennai
[4]Department of Mathematics, Utkal University, Bhubaneswar
[5]CMACS, Bangalore

A climatology for the cyclonic disturbances for Orissa coast in particular and east coast of India in general has been created for the period 1804-2007. The information included in the data base are period of occurrence, type of disturbance , track position , point of crossing/landfall, estimated pressure drop, wind speed and damage caused due to cyclonic disturbances . Three different sources of information have been collected on the number of cyclonic storms along the east coast of India. It is found that the state of Orissa is most prone to cyclone followed by Andhra Pradesh in all the three different sources. Distribution of cyclonic storms for the six coastal districts of Orissa shows that frequency is maximum in the Ganjam district, followed by Balasore and Puri districts. However, the frequency of very severe cyclonic storms/ super cyclone is maximum in Jagatsinghpur district. Vulnerability parameter, maximum probable surge and maximum sustained wind for the six coastal districts have been computed and presented. Tracks of the cyclones crossing Orissa coast during the period 1877 to 2004 have been prepared and the sources of their origin have been identified. The coastline has been demarcated with specified buffer zones in order to assess the risk in respective zones. In preparation of the above climatology and to bring it to a presentable form GIS and GPS have been used extensively. The climatology of tropical cyclones have also been examined in relation to El Nino/La Nina years and Indian Ocean Dipole(IOD)/non IOD years.