

3rd International Conference on Hydrology & Meteorology

September 15-16, 2014 Hyderabad International Convention Centre, India

The effects of climate change on hydrological system of Sundarbans

Debayan Purkait¹ and Sayan Bhattacharya²

¹Asutosh College, India

²Rabindra Bharati University, India

Sundarbans are the largest mangrove ecosystems in the world and is a part of Ganga-Brahmaputra-Meghna delta spanning about 350 km in width in southern Bangladesh and the state of West Bengal in India. This unique ecotonal zone is exposed to both saline and fresh water and harbours a great floral and faunal diversity. Scientists have recently gathered enough evidences which can prove that the Sundarbans mangrove area is one of the most severely affected ecological zones by climate change. Some of the warning signs of the adverse effects of climate change such as sea level rise, water logging, poor drainage, siltation and seawater intrusion are already visible in the Sundarbans region. The sea levels of Sundarbans are rising faster than global average because of glacier meltdown in Himalayan region. Already, Lohachara Island and New Moore Island/South Talpatti Island have disappeared under the sea, and Ghoramara Island is half submerged. The probability of extreme flood events is found to have increased upto 3 times in recent decades in this area. From the year 1958 to 2006, the monsoon rain fall has increased as 2.65 mm/year in this region. Changing rainfall patterns are making conventional cultivation of crops difficult for farmers. The surface water temperature has been increased at the rate of 0.5 degree Celsius per decade over the past three decades in the Sundarbans, eight times the rate of global warming rate of 0.06 degree celsius per decade. The surface water pH over the past 30 years has reduced in the region, thus increasing acidification. The variations in salinity and increased temperature are thought to be the reasons for observed variation in pH and dissolved oxygen. The concentration of dissolved oxygen in some parts of the Sundarbans showed a decreasing trend. Depletion in dissolved oxygen can cause major shifts in the ecological habitation in the region. Rising temperature could also be one of the reasons for decreasing dissolved oxygen in the Sundarbans. Intensive investigations should be done and interdisciplinary mitigation measures should be adapted for preserving this precious ecosystem of Bengal.

Biography

Debayan Purkait is a third year BSc (Hons.) student in the Department of Environmental Science, Asutosh College, Kolkata, India. He has attended several international and national conferences and has published research paper in peer reviewed international journal.

deb123.p@gmail.com