J Earth Sci Clim Change 2019, Volume 10
DOI: 10.4172/2157-7617-C2-060

Impacts of climate change on salinity intrusion in south central coast of Bangladesh

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The water quality in the coastal region was affected by various climatic parameters, i.e. temperature, humidity, precipitation and as well as anthropogenic reasons. The study was conducted to investigate the impacts of climate change on water quality at south central coastal region (Kalapara Upazila in Patuakhali District) of Bangladesh. The study has collected some meteorological data of Kalapara station from 1975 to 2015. The water samples were collected from the different locations in the coastal areas including open sea, channels, rivers, ponds and tube wells in the study area. The analysis results were compared with some published reports on water quality in the coastal areas and interpreted accordingly. Major physicochemical parameters of the samples were analyzed in the laboratory using various standard methods of analysis as well as the Arithmetic Quality Index was used to assess the existing water quality of the study area. The metrological data analysis results illustrate that an average of 0.6 °C temperature has increased over the last 40 years and the projected average temperature will increase up to 1.2 °C by the year 2050. The analysis results also show the increasing trend in humidity and precipitation in the area. The water samples analysis results illustrated that most of the tubewell and surface water are unsuitable for drinking, domestic or agricultural purposes due to saline water intrusion in the area. The water quality comparison results indicated that the salinity intrusion is threatening the ecosystem of coastal areas of Bangladesh. Further studies on this issue are needed for the sustainability of water resource and the environment as well.

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