AOGS 2006


# Climate Change and Its Impact on the Hydraulic Conditions of Lake Inawashiro Basin in Japan

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The main objective of the present paper is to evaluate the effects of climate change on the hydraulic conditions of Lake Inawashiro basin in Japan. Yearly precipitations in this area have been observed to increase at one point four times the precipitations over the last thirty years, and significant hourly rainfall events exceeding fifty millimeters have been recorded since 2000. The lake was an acid-trophic with the potential of Hydrogen (pH) level under five before thirty years. When pH reached five or more in 1993, cloudy or black suspended matter was observed around the lake shore and in the lake. This phenomenon caused some concerns among residents who are alarmed by the worsening of the water environment. Neutralization progressed rapidly after 2000. If the neutralization has been continued, the lake water would become eutrophication by high phosphorus released from bed materials. The reason for the upturn of pH was investigated from three different aspects: the first one is the decrease of sulfuric acid load from the basin, the second is the increase of alkaline-ion load from urban area, and the last one is the increase of dilution water carried from increasing precipitation in the basin. The simulated analysis on thirty years concluded that the upturn of pH was caused by the increase of precipitation due to the changing of climate conditions in the basin.