

Long-term Sediment Discharge Analysis in Yongdam Dam Watershed due to Climate Change

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Abstract

Increase in Earth's surface temperature, higher rainfall intensity rate, and rapid changes in land cover are just some of the most evident effects of climate change. Flooding, and river sedimentation are two inevitable natural processes in our environment, and both issues poses great risks in the dam industry when not addressed properly. River sedimentation is a significant issue that causes reservoir deposition, and thus causes the dam to gradually lose its ability to store water. In this study, the long-term effects of climate change on the sediment discharge in Yongdam Dam watershed is analyzed through the utilization of SWAT, a semi-distributed watershed model. Based from the results of this study, an abrupt increase on the annual sediment inflow trend in Yongdam Dam watershed was observed; which may suggests that due to the effects of climate change, higher rainfall intensity, land use and land cover changes, the sedimentation rate also increased. An efficient sedimentation management should consider the increasing trend in sedimentation rate due to the effects of climate change.

Keywords : climate change, SWAT, dam sedimentation

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