Abstract

Water pollution is a major global problem that requires ongoing evaluation and revision of water resource policies at all levels, in order to create a healthy living environment. Differential equations are an effective way to analyze such situations. In this paper a system of linear equations with interconnecting pipes is considered for analyzing the pollution of system of lakes through differential equations. Perturbation-iteration method is used to compute an approximate solution of three input models i.e. periodic, linear step model and exponentially decaying model. The fourth order Runge-Kutta method (RK4) numerical solution of the lakes system problem is used as a reference to compare with the analytical approximations showing the high accuracy of the results.
Solving Polluted Lakes System by using Perturbation-Iteration Method

References


Index Terms

Computer Science

Applied Mathematics

Keywords

Water Pollution  Pollution of System of Lakes  Perturbation Iteration Method  Analytical Approximations