Simulation of water table drawdown due to subsurface drainage in a seepage irrigated field

In seepage irrigated fields of Florida, subsurface drainage towards the ditches is the major mechanism for the lowering of water table below the crop root zone. Efficient irrigation scheduling is important in these fields to reduce wastage of water as well as the risk of moisture stress to crops, which requires knowledge on depth of the water table at a given time. Water table drawdown due to one dimensional subsurface drainage and evapotranspiration was simulated in a typical seepage irrigated field under potato in northeast Florida. The governing equation for the one dimensional subsurface drainage was numerically solved by implicit finite difference method to obtain the simulated hourly water table data in the field. Comparisons were performed between the simulated and measured hourly water table at the center of the field at different drainage events. Good agreement was found between the simulated and measured water table depths which suggest that such simulation model can be an aid for better scheduling of seepage irrigation that can save both water and energy.