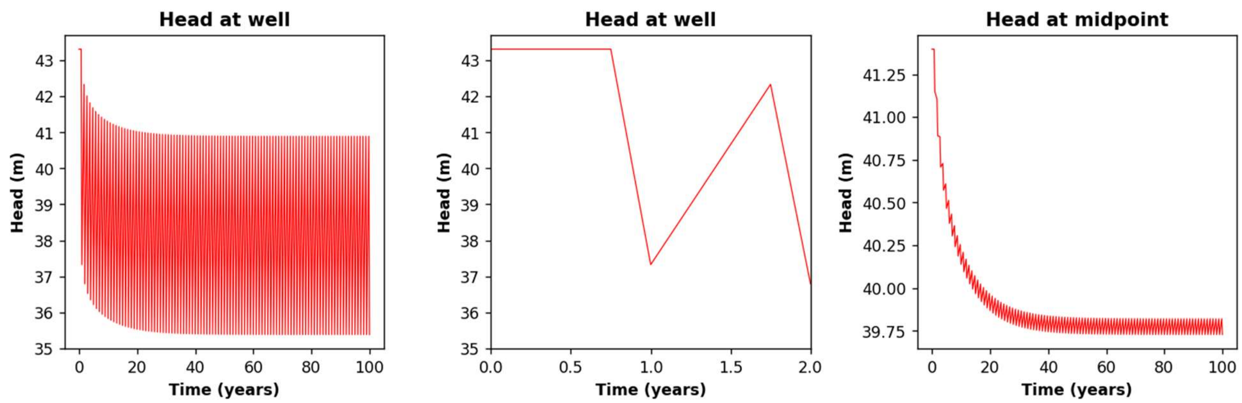


Figure 1: Initial figures for the cyclical pumping/transient model with a 500 m/d pumping rate for 90/360 days. The middle graph was zoomed in to show the initial burn-in period and the first pumping/recovery cycle.

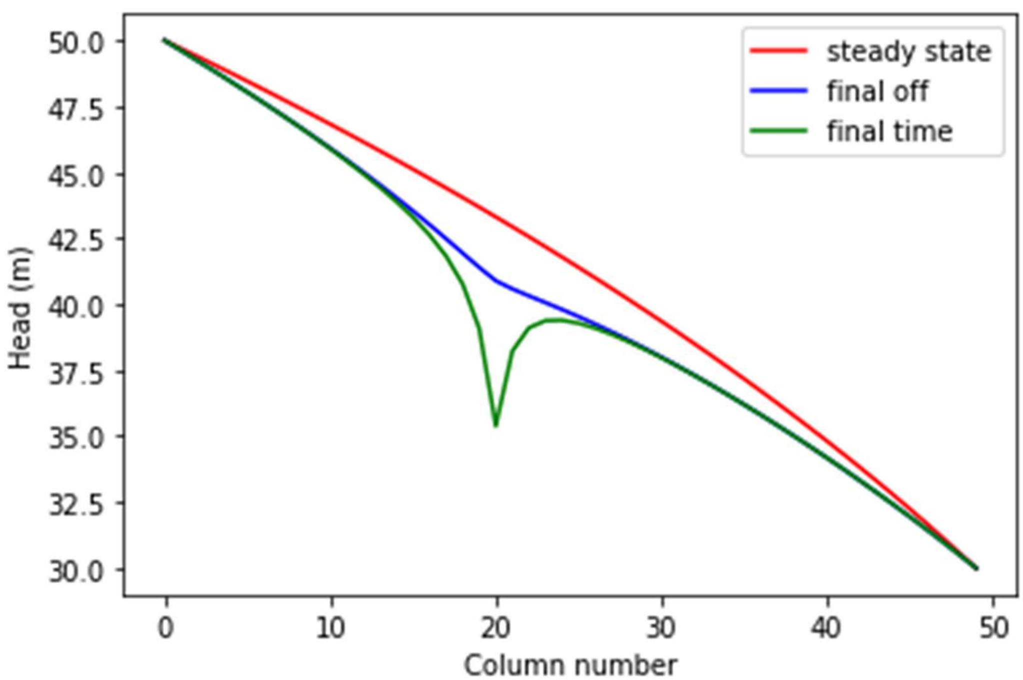


Figure 2: Head distributions along the middle row of the domain at the steady-state burn-in period, the final pump-off time, and the final simulation time (at which point the pump was running).

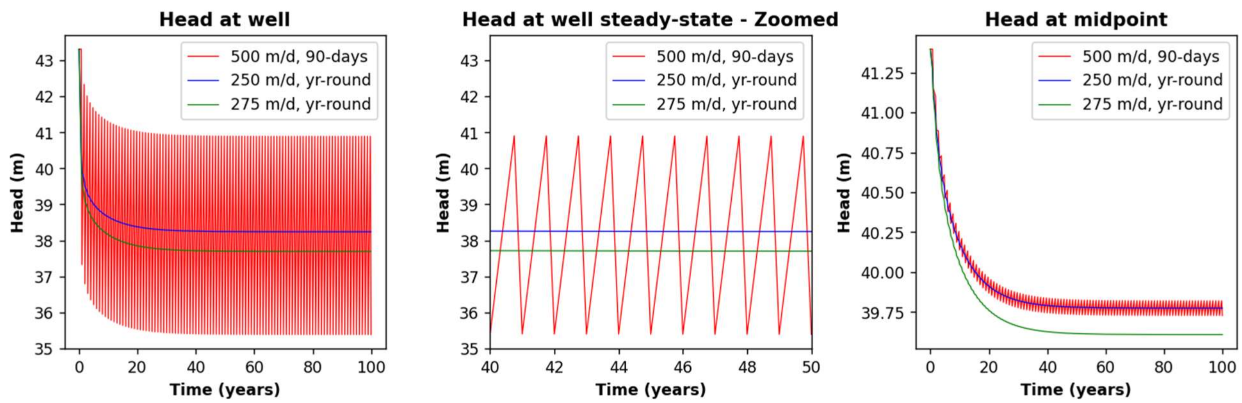
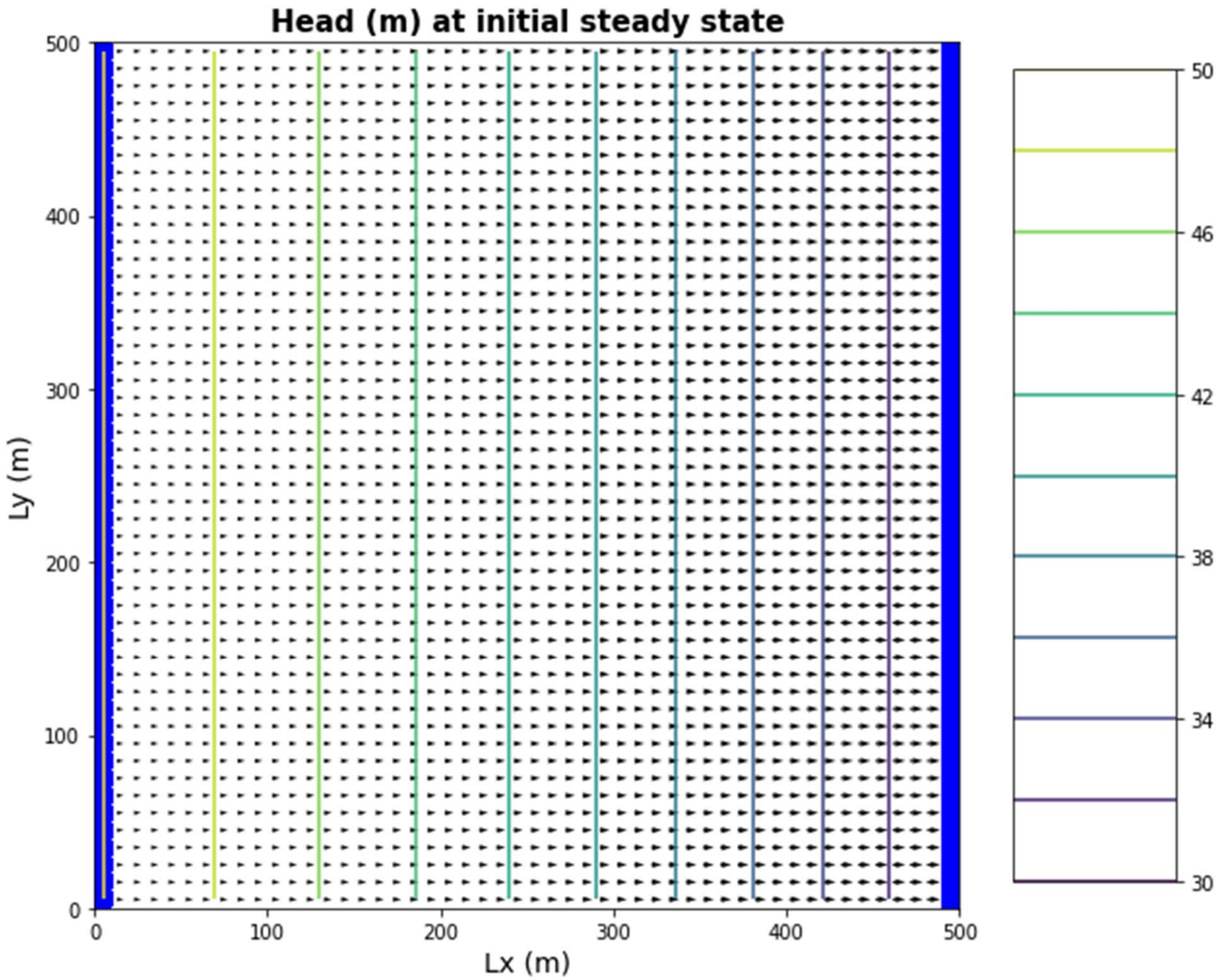
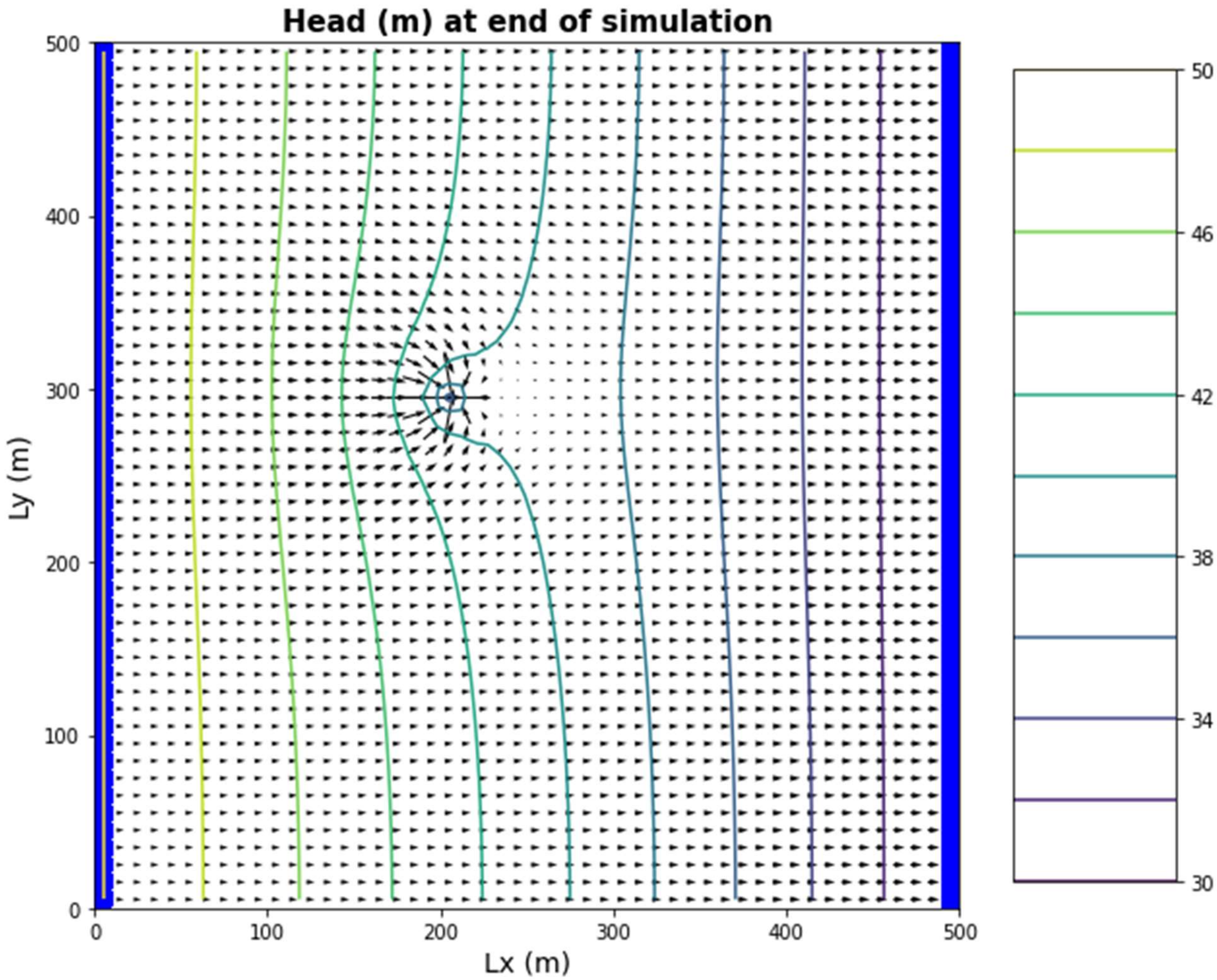
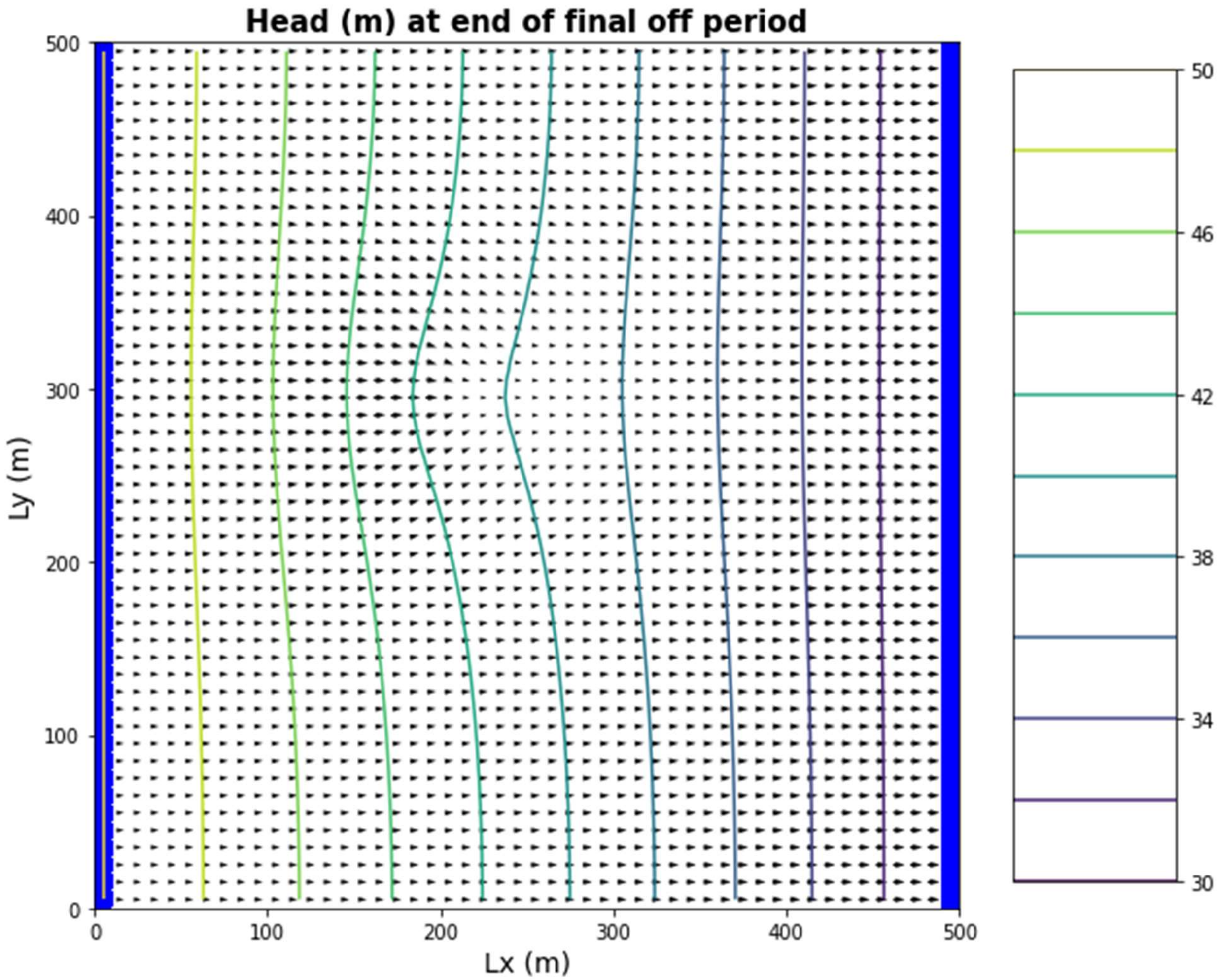


Figure 3: Two different constant pumping rates were overlain on the initial cyclical pumping model to determine how closely they fit to the cyclical head distribution. At first a rate of -125 m/d for the constant pumping model was chosen due to the amount of uniform recharge across the domain (125 m/d at 5e-4 m/d across each cell's area). This was found to have a head distribution that was too high in comparison to the cyclical model; at this point I guessed, and doubled the rate of constant pumping to -250 m/d, which fit the "center" of the seasonal oscillations almost perfectly (0.1 m off of the cyclical steady-state average for the head at the well, and 1e-5 m off of the head a the midpoint). -275 m/d was also tried to see if a closer value could be reached for the head at the well; this resulted in the head distribution being too low, indicating that only a minor change would be needed in the pumping rate to come as close as the head at the midpoint at a pumping rate of -250 m/d. This rate would likely be so negligible that it could be ignored.



Head (m) at initial steady state
Ly (m)
Lx (m)
0
100
200
300
400
500
0
100
200
300
400
500
50
46
42
38
34
30


Head (m) at end of simulation
Ly (m)
Lx (m)
0
100
200
300
400
500
30
34
38
42
46
50



Head (m) at end of final off period
Ly (m)
Lx (m)
0
100
200
300
400
500
30
34
38
42
46
50