

Check 10 - Transient simulation of the Hantush (1967) analytic solution for mounding under a rectangular recharge area

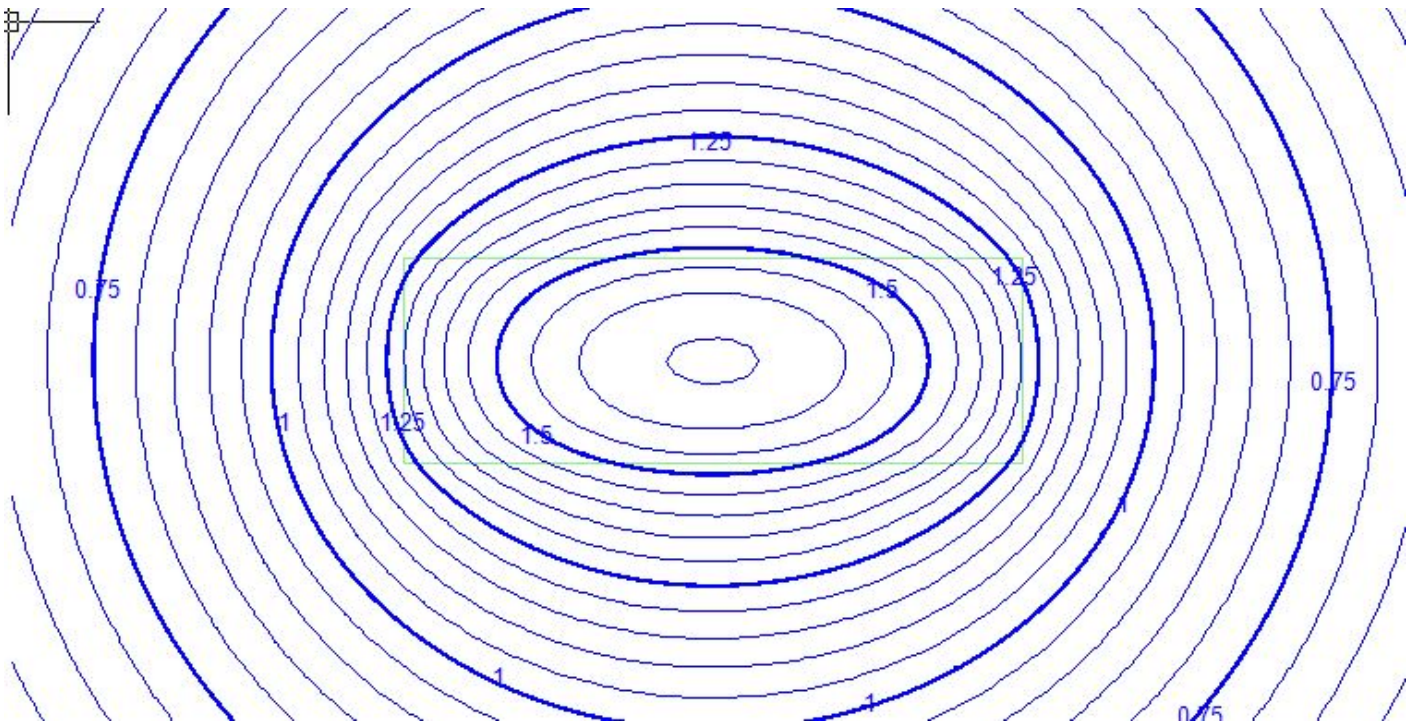
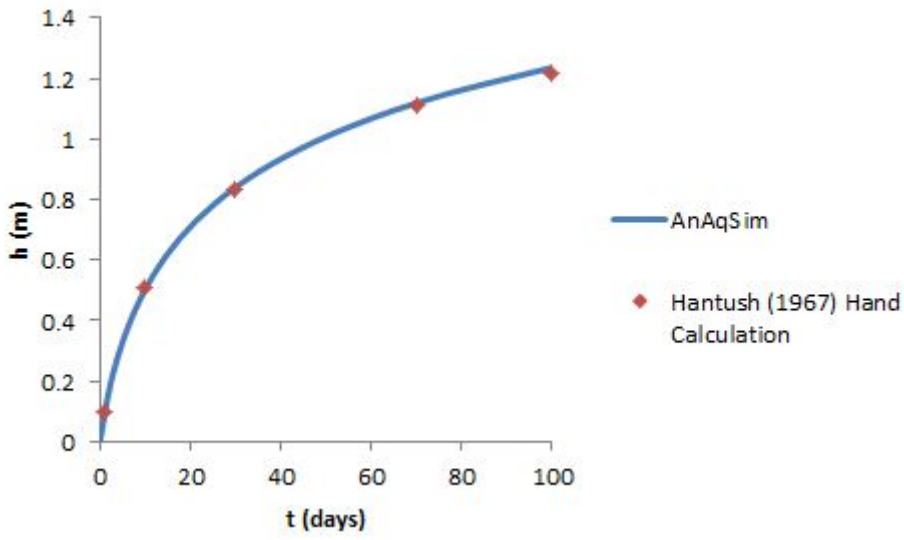
Checks unconfined domains, spatially-variable area sinks for simulating storage changes and spatially-variable recharge, inter-domain boundary

This is an unconfined aquifer that is 6 m of saturated thickness. The rectangular recharge area starts adding recharge at a steady rate of 0.05 m/day at time zero. The recharge area is 60 m x 20 m. The aquifer horizontal $K = 2$ m/day and the specific yield is $S_y = 0.12$.

The Anaqsim simulation starts with heads = 0 (aquifer base = -6.0 m), it runs for one 100 day time period with 10 time steps and a time step multiplier of 1.3.

A hydrograph is generated at one of the corners of the recharge area, and this is compared to hand calculations of mounding at this point, computed with Equation 14 in the Hantush (1967) paper (Water Resources Research, 3(1), p. 227).

The results are as close as possible given the interpolation from tables required for the hand calculation. The Anaqsim generated head contours at $t = 100$ days is shown below with the recharge area outlined in green.



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