There are two forms of the solution presented in Li et al. 2004

Full solution: $h(x,t) = -2AB\int_{-\infty}^{t}(\varepsilon - t_0)\exp[-B(\varepsilon - t_0)^2]erfc\left[\frac{x}{2\sqrt{D(t-\varepsilon)}}\right]d\varepsilon$ → **Reproduces head time series**

h is the groundwater level (m)
x is the cross-shore position (m, positive inland from the x5 well)
A is the amplitude of the water table fluctuation at D well (m),
t0 is the time of the maximum head at the D well,
B is a time factor ($d^{-1/2}$, $B^{-1/2}$) represents the duration of the elevated water level)
D is aquifer diffusivity (m^2/d).

Non-dimensionalized solution: $h(x^*,t^*) = -2\int_{-\infty}^{t^*}\varepsilon^*\exp[-(\varepsilon^*)^2]erfc\left[\frac{x}{\sqrt{t^*-\varepsilon^*}}\right]d\varepsilon^*$ → **Used to look at phase change and amplitude attenuation of the storr bulge (Li solution our i observational data is compared to is found b solving for the local max, and time of local max in this equation)**

$$h^* = \frac{h}{A}$$

$$t^* = (t - t_0)\sqrt{B}$$

$$x^* = \frac{x}{2\sqrt{D/B^{1/2}}}$$