This presentation studies the impact of a sloping aquifer base on a large aquifer. Our case study is the Ogallala Aquifer in the central plains of the USA. Modelling of groundwater is accomplished through the use of numeric and analytic techniques. MODFLOW, a common numeric model, has been used to model the Ogallala Aquifer, but problems often arise due to steep slopes, small saturated thicknesses, and high hydraulic conductivities. These aquifer properties frequently result in cells going dry unexpectedly, as well as failure to meet model convergence criteria. The sloping base model is an analytic method that has also been used to simulate groundwater flow in the Ogallala in previous studies by the authors. This approach breaks the aquifer into a set of rectangular cells, solves for the 1-D flow and iterates across cells. Results are shown for the two modelling approaches, and the strengths of each are illustrated.