

The conceptual groundwater model is heavily dependent on the geological framework which is used to define the aquifer being studied. In the past, two-dimensional datasets such as geological maps and cross-sections were used in coordination with site-specific point data to build a conceptual understanding at the site or catchment scale. This is then simplified and it is this simplified version which is used to build the framework for the numerical groundwater flow model. Due to the way the geological framework model and the conceptual groundwater model were generated they could not be viewed together; this inevitably led to a significant loss of information and understanding. With the current rapid developments in 3D modelling software and the increasing availability of digital geological data it is now possible to produce detailed 3D geological models of complex aquifer sequences. In this paper we will use two case studies (Chalk aquifer of the London Basin and the Jurassic limestone aquifer of the Cotswolds) to demonstrate that by developing a detailed 3D geological model significant benefits are gained in the understanding and development of the conceptual groundwater model.