

## **Abstract**

Manifestations of the tidal force have been known to humanity since antiquity. The oldest extant remarks on the origin of the tidal force are in the Natural History of Pliny the Elder. He also left us remarks on periodic changes of water-level in wells. This phenomenon does not necessarily have to be connected to the proximity of seas. As such, it is a subject of research since the end of 19th century. Exploring the mechanisms with which the tidal force affects the groundwater level requires combining the findings of geology and hydrogeology but also the knowledge of hydraulics and geomechanics of porous media and certain understanding of astronomy. This thesis contributes to the knowledge of the mechanism of tidal oscillations in groundwater measured in a borehole near Teplice nad Metují in Police Basin. It utilizes models based on the knowledge of geological and hydrogeological structure of the surroundings of the borehole. It investigates the relation between the physical properties of porous media and the amplitude and phase of the tidal oscillations and presents solutions of the models.