

POSSIBILITY TO ESTIMATE THE ELASTIC PARAMETERS OF WATER-SATURATED ROCKS ACCORDING TO WATER-LEVEL OBSERVATIONS IN PIEZOMETRIC WELLS

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The paper presents processing methods of data from level observations in the wells to estimate the elastic parameters of the water-bearing rocks using the values of barometric efficiency and water level tidal sensitivity. The application of this method is stipulated by presence of static-confined response of water level in the well within time hourly periods. Such a water level response can appear at periods from hours to the first tens of days in wells, which penetrate confined groundwater without gas in relatively weak conductive water-bearing rocks at depths of a few hundred meters or deeper. For such wells we can obtain the values of rock matrix compressibility and Scamptson's coefficient using the formulas of poroelasticity theory. In this case, the estimations of porosity and specific storage of water-bearing rocks will be approximate.

Keywords: well, water level, barometric efficiency, tidal sensitivity, compressibility.