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VERIFICATION AND CALIBRATION OF GROUNDWATER MODFLOW MODEL OF SZIGETKÖZ AREA (NW HUNGARY) USING ISOTOPE TOOLS

MODFLOW model was developed and calibrated by isotope data to detect the effects of human impact on the groundwater flow regime in Szigetköz and surrounding area. Some seepage parameters and boundary conditions of MODFLOW model should have been changed for the sake of best fitting of the position of modeled and measured tritium peaks of 1963. Transit time and ratio of older (tritium free) water are increasing with distance from Danube up to 75 years and 50% respectively by lumped parameter Dispersion Model (DM) [3 and 4]. These data were validated by $^3\text{He}/^3\text{H}$ dating. Verification of a one-dimensional model and calculation of flow velocity as 425 m/a and longitudinal dispersivity as 250 m was performed by ^{36}Cl data [6] in good agreement with results of tritium evaluations.

^3H , ^3He , ^{36}Cl , ^{18}O and ^2H isotope data are excellent tools for validation and calibration of conceptual and mathematic models of young groundwater bodies as Szigetköz and surrounding area including lumped parameter DM and one dimensional flow models.

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