RADIAL GROUNDWATER FLOW TOWARD A SPRING

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Maillet's single term and Schoeller's multiterm karstic spring discharge models have long been in use in hydrology and hydrogeology. The former is a physically based model. However, the single linear reservoir assumption of the total flow domain is inadequate to describe the kastric spring discharge process. The empirical approach of the latter model gives rise to some physical difficulties in the interpretation of model parameters.

Birsoy showed that the empirical equation of Schoeller can be derived physically by using the partial differential equation of unidirectional groundwater flow. The major drawback in this physically based approach is this assumption of unidirectional flow. It is clear that this assumption may well describe the groundwater flow toward a ditch or a river, but how well it works for flow toward a spring is doubtful.

Radial flow may be more representative of flow toward a spring than the unidirectional flow. Therefore, in the presented study, the partial differential equation of radial groundwater flow is solved by transforming the partial differential equation into n ordinary differential equations with n unknows. The resulting equation is similar to the emprically proposed equation by Scholler and theoretically derived equation for unidirectional flow by Birsoy. Physical interpretation of modal parameters will naturally be different.

INVERSELY PILED METAMORPHIC SUCCESSIONS OF THE PHYLLITE QUARZITE SERIES OF THE SOUTHERN PELOPONNESUS. - STRUCTURAL AND GEODYNAMIC IMPLICATIONS.

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The Phyllite-Quartzite Series (PQS), widely distributed in SE-Lakonia, is formed by several successions different in lithology, petrography, metamorphism and deformation. The spatial relationships between thesa successions give information about the structure of the PQS and the geodynamic evolution of the external Hellenides.

Three characteristic successions make up the PQS in SE Laconia: Succession 1 is a monotonous alternation of metaquartzites and phyllites of low grade Barrowian metamorphism with the characteristic prograde mineral paragenesis.