SVC049-08   :105   :5   23   18:15-18:30

DEVELOPMENT OF A NEW SIMPLE HYDROSTATIC EQUILIBRIUM MODEL FOR SUSTAINABLE EVALUATION IN GEOTHERMAL LIMITED RECHARGE

yayan sofyan[1]*
yayan sofyan[1]*

[1]Aso Volcanological Laboratory, [2]University of Indonesia
[1]Aso Volcanological Laboratory, [2]University of Indonesia

Geothermal energy is a renewable energy, that is, the energy removed from the geothermal reservoir is continuously replaced on time scales similar to those required for energy removal. Supplied energy to the geothermal reservoir comes from natural recharge and injection. Sustainable production in the geothermal energy development is the ability of the production system applied to sustain the stable production level over long times. It is very important to manage the mass balance between production, injection and natural recharge in the geothermal reservoir during exploitation. A new simple hydrostatic equilibrium model is developed by this mass balance model of geothermal reservoir.

New simple hydrostatic equilibrium model in this paper is built to estimate hydrostatic connection between recharged reservoir and discharged reservoir. Principle of transmission of fluid-pressure in the physical sciences states that pressure exerted anywhere in a confined incompressible fluid is transmitted equally in all directions throughout the fluid such that the pressure ratio remains same. Hydrostatic equilibrium occurs when compression due to gravity is balanced by a pressure gradient force in the opposite direction. Mass changes data in this hydrostatic equilibrium model is estimated by gravity changes from repeat gravity measurement method. The equation result between these parameters estimates recharge factor from discharged reservoir. This model also assumed a relatively constant of entered fluid flow rate from the surface that continues working during the production and injection well activity. This new simple hydrostatic equilibrium model is applied for sustainable evaluation in the geothermal field with limited natural recharge.

      : Hydrostatic equilibrium model, Recharge factor, Geothermal reservoir with limited recharge, Sustainable evaluation
Keywords: Hydrostatic equilibrium model, Recharge factor, Geothermal reservoir with limited recharge, Sustainable evaluation