

INTISARI

Sisi selatan Gunungapi Merapi yang terletak di Kabupaten Sleman Daerah Istimewa Yogyakarta, secara morfologi terdiri atas tiga unit morfologi yaitu lereng gunungapi, lereng kaki gunungapi dan dataran fluvial kaki gunungapi. Daerah tersebut merupakan lokasi imbuhan airtanah primer yang menyuplai kebutuhan airtanah untuk Kabupaten Sleman dan Kota Yogyakarta. Berdasarkan hal tersebut penelitian ini mempunyai tujuan untuk mengetahui karakteristik spasial dan temporal fluktuasi muka airtanah, laju infiltrasi, kadar lengas tanah dan curah hujan di lokasi penelitian, mengetahui korelasi antara hujan, lengas tanah dan infiltrasi dengan fluktuasi tinggi muka airtanah dan mengetahui besarnya imbuhan airtanah di empat sumur pengamatan yaitu Tanen, Sukoharjo, Wedomartani, dan Banteng

Penelitian ini menggunakan metode *water table fluctuation* (WTF), yakni metode perhitungan imbuhan airtanah bebas berdasarkan atas fluktuasi muka airtanah. Pengukuran dilakukan pada 4 sumur pengamatan dengan memasang *Automatic Water Level Recorder* (AWLR), untuk mengetahui fluktuasi muka airtanah harian, memasang penakar hujan untuk mengetahui curah hujan harian, pengukuran laju infiltrasi dan pengukuran kandungan lengas tanah pada kedalaman 25 cm, 75 cm dan 125 cm, semua yang dilakukan selama setahun yakni mulai dari Juli 2003 hingga Juli 2004.

Hasil penelitian menunjukkan bahwa terdapat perbedaan karakteristik secara spasial dan temporal fluktuasi muka airtanah, curah hujan, laju infiltrasi, dan kandungan lengas tanah di daerah penelitian. Hal tersebut ditunjukkan oleh hasil uji anova dengan tingkat signifikansi 5 % yang menunjukkan bahwa fluktuasi muka airtanah, curah hujan, laju infiltrasi, dan kandungan lengas tanah dinyatakan berbeda baik secara spasial maupun secara temporal. Berdasarkan hasil analisis korelasi antara fluktuasi muka airtanah dengan hujan di Tanen, Sukoharjo, Wedomartani, dan Banteng secara berturut-turut memiliki korelasi : sangat rendah, rendah, rendah dan sedang. Korelasi antara fluktuasi muka airtanah dengan laju infiltrasi berturut-turut memiliki nilai korelasi : rendah, rendah, sedang, dan kuat. Korelasi antara fluktuasi muka airtanah dengan lengas tanah 25 cm berturut-turut memiliki korelasi : rendah, rendah, sedang, dan kuat. Korelasi fluktuasi muka airtanah dengan lengas tanah 75 cm memiliki korelasi : kuat, sedang, rendah, dan sangat rendah. Korelasi antara fluktuasi muka airtanah dengan lengas tanah 125 cm memiliki korelasi rendah, rendah, sangat rendah dan sangat rendah. Besarnya imbuhan airtanah selama setahun di Tanen sebesar 4270 mm/th, Sukoharjo sebesar 5220 mm/th, Wedomartani 3820 mm/th dan Banteng 4450 mm/th.

Kata kunci : karakteristik imbuhan airtanah

ABSTRACT

South side Merapi Volcano which is located in Regency of Sleman of Special Region Yogyakarta, in morphology consisted of three morphology unit that is volcanic side, volcanic foot side and fluvio volcanic foot side. The area represent the location of augmentation of primary groundwater recharge which supply of requirement groundwater for the Regency of Sleman and Town Yogyakarta. The research aims are to study characteristic of spasial and temporal of free groundwater fluctuation, characteristic of infiltration rate, characteristic of initial soil moisture and characteristic of rainfall in research location, to study there is correlation of some analyzed variable (rainfall, initial soil moisture and infiltration rate) with the groundwater fluctuation and to study the level of groundwater recharge at various morphology unit

This research use the approach of water table fluctuation (WTF). Research was conducted by determining points of perception of groundwater fluctuation as according to variation of morphology in Merapi mount south side is which during the time recognized as a recharge area of Yogyakarta town. Measurement was conducted at 4 observation well with installing AWLR to know the daily groundwater fluctuation, installing rain gauge to know the daily rainfall, measurement rate infiltration and measurement initial soil moisture at deepness 25 cm, 75 cm and 125 cm conducted a year start from July 2003 until July 2004.

The research result show that there are difference characteristic by spasial and temporal of water table fluctuation, rainfall, infiltrate rate, and soil moisture content in research area. The mentioned shown with the result test the anova with the significant level 5 % indicating that water table fluctuation, rainfall, infiltrate rate, and soil moisture content expressed to different spatially temporalyl. Pursuant to result analyse the correlation between fluctuation with rainfall in Tanen, Sukoharjo, Wedomartani, and Banteng by successively have the correlation : very low, low, low and moderate. Correlation between water table fluctuation, infiltrate rate successively have the correlation value : low, low, moderate, and strong. Correlation between groundwater fluctuation and soil moisture at 25 cm successively have the correlation : low, low, moderate, and strong. Correlation of water table fluctuation and soil mouisture content at 75 cm havethe correlation : strong, moderate, low, and very low. Correlation between water table fluctuation and soil moisture content at 125 cm have the correlation : low, low, very low and very low. Rate of groundwater recharge during a year in Tanen is 4270 mm/year, Sukoharjo 5220 mm/year, Wedomartani 3820 mm/year and Banteng 4450 mm/year.

Keywords : groundwater recharge