



INTISARI

Penelitian ini berjudul “Kajian Variasi Timbunan Air Di Daerah Tangkapan Waduk Sermo”. Daerah penelitian merupakan salah satu Sub DAS yang termasuk di dalam DAS Ngrancah, Kabupaten Kulonprogo Provinsi Daerah Istimewa Yogyakarta. Pada outlet Sub DAS Ngrancah Hulu terdapat Waduk Sermo dan Sub DAS Ngrancah Hulu ini berfungsi sebagai daerah tangkapan Waduk Sermo. Tujuan penelitian ini untuk mengetahui besarnya variasi timbunan air permukaan dan variasi timbunan air bawah permukaan di daerah tangkapan Waduk Sermo.

Metode imbangan air yang terdiri dari komponen aliran masuk, yaitu hujan dan aliran keluar yang berupa evapotranspirasi aktual, evaporasi air bebas, debit limpasan, dan variasi timbunan air digunakan dalam perhitungan. Hujan dihitung dari rerata curah hujan pada stasiun hujan di Stasiun Kokap, evapotranspirasi aktual dihitung menggunakan metode Thornthwaite-Mather, evaporasi air bebas dihitung menggunakan pan-A evaporasi yang dilakukan oleh Proyek PKSA Waduk Sermo, debit limpasan dihitung dari debit yang keluar dari Waduk Sermo baik yang keluar melalui terowongan air maupun melalui saluran pelimpah. Variasi timbunan air total dihitung dari hujan dikurangi aliran keluar. Variasi timbunan air permukaan Waduk Sermo dihitung berdasarkan variasi volume air dari waktu ke waktu, sedangkan variasi timbunan air bawah permukaan dihitung dari selisih variasi timbunan air total dengan variasi timbunan air permukaan Waduk Sermo.

Hasil dari perhitungan variasi timbunan air diperoleh bahwa variasi timbunan air permukaan di Waduk Sermo secara bulanan cenderung bernilai negatif (bulan-bulan defisit mempunyai frekuensi lebih banyak dibandingkan bulan-bulan surplus) dengan nilai defisit terendah terjadi pada bulan September, yaitu -2,08 juta m³ dan nilai surplus tertinggi terjadi pada bulan Februari, yaitu 3,39 juta m³, sedangkan variasi timbunan air bawah permukaan di daerah tangkapan Waduk Sermo cenderung bernilai positif (bulan-bulan surplus mempunyai frekuensi lebih banyak dibandingkan bulan-bulan defisit) dengan surplus tertinggi terjadi pada bulan November, yaitu 5,70 juta m³ dan nilai defisit terendah terjadi pada bulan Mei, yaitu -0,67 juta m³. Hasil dari perhitungan variasi timbunan air secara tahunan, diperoleh bahwa variasi timbunan air permukaan Waduk Sermo cenderung menurun (negatif), sedangkan variasi timbunan air bawah permukaan daerah tangkapan Waduk Sermo cenderung bertambah (positif).



ABSTRACT

The title of this research is “A Study of Storage Variation in The Catchment Area of Sermo Reservoir”. The research area is one of the Sub Watersheds in Ngrancah Watershed of Kulonprogo Regency in Special District of Yogyakarta. In the outlet of Ngrancah Hulu sub watershed is Sermo Reservoir and this watershed functions as the catchment area of Sermo Reservoir. The objective of this research is to know how much water storage variation both on the surface and in the catchment area of Sermo Reservoir.

The method used in this research was water balance which consists of inflow, those were the precipitation and outflow in the form of actual evapotranspiration, evaporation, discharge, and water storage variation. The precipitation was estimated from rainfall average in the rain station of Kokap Station. Actual evapotranspiration was estimated by using Thornthwaite-Mather method. Evaporation was estimated by using pan evaporation which was done by PKSA Project of Sermo Reservoir. The discharge was estimated from flow which comeout from Sermo Reservoir both pass through intake or spill-way. The total water storage variation was estimated from precipitation subtract the outflow. Water storage variation of Sermo Reservoir surface was estimated based on water volume variation from time to time, whereas water storage variation of underground was estimated from the difference of the total water storage variation and the water storage variation of Sermo Reservoir surface.

The result of the water storage variation estimation is that the monthly surface water storage variation of Sermo Reservoir tends to be negative (the deficit months have more frequency than the surplus months) with the lowest deficit value is ini September, that is -2,08 million m³ and the highest surplus value is in February, that is 3,39 million m³, whereas the underground water storage variation in the catchment area of Sermo Reservoir tends to be positive (the surplus months have more frequency than the deficit months) with the highest surplus is in November, that is 5,70 million m³ and the lowest deficit value in May, that is -0,67 million m³. The result of the yearly estimation of water storage variation is that the water storage variation of Sermo Reservoir surface tends to decrease (negative), whereas the water storage variation of the underground of the catchment area of Sermo Reservoir tends to increase (positive).