



ABSTRACT

The research titled "*GAMA I MODELS FOR PEAK FLOOD RUNOFF ESTIMATION AT SERANG, PROGO AND OYO RIVER BASIN.*" include Serang river basin at Kulonprogo regency, Oyo river basin mostly at Gunungkidul, Yogyakarta regency, Bantul regency, and one part Klaten regency in Central Java Province, evethough Progo river basin at Temanggung regency, Semarang regency, Boyolali regency, Wonosobo regency, Magelang regency, Sleman regency, Bantul regency, and Gunungkidul regency. Aim this research to consider influence river basin morphometrical factors against peak runoff, to compare Gama I peak runoff result with natural unit hidrograph result in research river basins.

Gama I model is model peak runoff estimate with to base on river basin morphometrical measuring at topography map and to compare with natural unit hidrograph estimate. From both method later to compare peak runoff and to search correlation and more influence factor from river basin morphometrical against peak runoff boths method with pearson product moment analyse and SPSS. River discharge data and rainfall data couples, river basin morfometrical data from map topography measurement.

The analysis results shows a correlation in the high role score at natural Q_p are A_d , L_d , SF , SN , JN , D_d , S_d , where as SIM in the quite role and RUA in the rather low role. Gama I Q_p influenced by A_d , SF , SN , JN , D_d , S_d in the high role scores, SIM and L_d the quite role and RUA include to rather low scores. In the regression analyse, each it results in two models, this model are not recommended for the peak runoff, considerate not all of its are in real, in spite of its regression coefficients are big beside its purpose is just to know the most influenced factors in the both of Q_p . In the natural Q_p to the river basin wide first model A_d , second model A_d and SN , while in the Gama I Q_p A_d , second model A_d and L_d .

The results of Gama I Q_p (Serang 7,108 m/dtk², Oyo 42,048 m/dtk², Progo 170,163 m/dtk²) comparison are bigger than the natural Q_p (Serang 15,436 m/dtk², Oyo 39,959 m/dtk², 103,195 m/dtk²) in all three of research river basins. This caused by the Gama I peak runoff in the account using the mathematical model based on A_d and JN , because if JN is more large, the list orde river is also more large which its are the River Basin framer, so Q_p is more large too, while the river basin morphometrical factor which have a high correlation role peak runoff is ignored, for example SF , SN , D_d , and S_d .

notet : A_d —rivers basin wide, SF =source factor, SN —source frekuensi, D_d —drinage density,
 L_d —main stream length, SIM =symetric facktor, RUA =relative upstream catchment area,
 S_d —average main stream slope, JN =number of junction, Q_p =peak runoff.