**Flood Analysis Based on the Influence of Geomorphology and Rainfall Patterns in the Tallo River Flow Area, Makassar City, South Sulawesi Province, Indonesia**

Hendra P. 1\*, Ilham A.2, and Intan A.3

1Department of Geological Engineering, Faculty of Engineering , Hasanuddin University, Indonesia

2Department of Geological Engineering, Faculty of Engineering , Hasanuddin University, Indonesia

3Department of Geological Engineering, Faculty of Engineering , Hasanuddin University, Indonesia

hendrapachri@unhas.ac.id

***ABSTRACT***

The South Sulawesi region is one of the regions in Indonesia that is often affected by flood disasters. The aim of this research is to determine the extent of inundation and flood discharge which is influenced by rainfall and geological characteristics. The research method is data collection, spatial analysis using HEC-RAS, and statistical analysis of rainfall data in the research watershed. Based on flood analysis, the rate of soil infiltration is influenced by layers of rock and soil in the form of clay, silt and sand, as a determinant of the runoff coefficient in the research area there are tufa and materials ranging from fine sand to clay and in general it is a pond area with water conditions. very shallow ground. In the research area, it was found that the geomorphological data consisted of flat alluvial units and sloping alluvial wavy units with flat topography and land cover dominated by dense settlements, ponds and open land, so that very high surface runoff could cause rapid flooding in the research watershed. Based on discharge calculations and flood simulation results, the annual planned flood inundation area for the research area has increased with the percentage of discharge and inundation area, namely Q2 with a discharge of 1994.5 m3/second and an inundation area of ​​30.49 km2, Q5 with a discharge of 2799.30 m3/second. and inundation area 32.97 km2, Q10 with discharge 3332.1 m3/second and inundation area 34.29 km2, Q50 with discharge 4504.9 m3/second and inundation area 36.64 km2, Q100 with discharge 5000.7 m3/ seconds and the inundation area is 37.46 km2.

**Keywords:** flooding analysis, south sulawesi, HEC-RAS, geomorphology