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**Analisis Hubungan Karakteristik Hujan terhadap Sedimen Tersuspensi di DTA Petak 13 Hutan Pendidikan
Wanagama I**
Julita Najma Mutiarani, Dr. Agr. Sc. Ir. Hatma Suryatmojo, S.Hut., M.Si., IPU., ASEAN Eng.
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ANALISIS HUBUNGAN KARAKTERISTIK HUJAN TERHADAP SEDIMEN TERSUSPENSI DI DTA PETAK 13 HUTAN PENDIDIKAN WANAGAMA I

Julita Najma Mutiarani[1], Hatma Suryatmojo[2]

INTISARI

Daerah Tangkapan Air (DTA) Petak 13 Hutan Wanagama dengan luasan 7,14 ha memiliki kondisi biofisik yang berpotensi menyebabkan erosi dan sedimen. Erosi dan sedimen terutama dipengaruhi oleh hujan dan karakteristik yang menyertainya sebagai agen pengerosi utama. Penelitian ini bertujuan untuk menganalisis karakteristik hujan di DTA Petak 13 Hutan Wanagama, mengukur hasil sedimen suspensi di DTA petak 13 Hutan Wanagama, dan menganalisis hubungan karakteristik hujan dengan muatan sedimen suspensi di DTA Petak 13 Hutan Wanagama.

Penelitian ini dilakukan di DTA Petak 13 Hutan Wanagama, Gunungkidul, DIY pada Bulan November 2025—April 2026. Data yang diambil meliputi data hujan harian menggunakan *Automatic Rainfall Recorder* (ARR), data tinggi muka air harian dengan *Automatic Water Level Recorder* (AWLR), data debit aliran harian dengan SPAS tipe V-notch weir 90°, sampel sedimen tersuspensi dengan RSSS (*Raising Stage Suspended Sampler*), data vegetasi, dan data topografi. Data yang diperoleh selanjutnya diolah dan dilakukan analisis regresi sederhana untuk mengetahui hubungan antara karakteristik hujan dengan sedimen suspensi.

Hasil penelitian menunjukkan terdapat variasi pada karakteristik hujan yang terjadi selama masa penelitian. Hasil sedimen tersuspensi yang diperoleh adalah sebesar 4,31 ton/ha/tahun atau sekitar 0,72 ton/ha/bulan. Karakteristik hujan memiliki hubungan signifikan dengan muatan sedimen suspensi. Tebal hujan (R^2 = 0,93) dan intensitas hujan maksimum 30 menit (R^2 = 0,69) merupakan karakteristik hujan yang berpengaruh kuat terhadap muatan sedimen tersuspensi. Kejadian hujan ekstrem berpotensi menjadi faktor utama pengendali erosi dan transpor sedimen di DTA.

Kata Kunci: Wanagama, DTA, sedimen tersuspensi, karakteristik hujan

[1] Mahasiswa Fakultas Kehutanan UGM
[2] Staff Pengajar Fakultas Kehutanan UGM

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ANALYSIS OF THE RELATIONSHIP BETWEEN RAINFALL CHARACTERISTICS AND SUSPENDED SEDIMENT LOAD IN THE CATCHMENT AREA OF PLOT 13, WANAGAMA I EDUCATIONAL FOREST

Julita Najma Mutiarani[1], Hatma Suryatmojo[2]

ABSTRACT

The Catchment Area of Plot 13, Wanagama Forest, covering 7,14 ha, is characterized by diverse biophysical conditions that may contribute to increasing erosion and sediment. Erosion and sediment yield are primarily influenced by rainfall and its characteristics as the main erosive agent. This study aims to analyze rainfall characteristics in the Catchment Area of Plot 13, Wanagama Forest, measure suspended sediment yield, and examine the relationship between rainfall characteristics and suspended sediment load within the study area.

This research was conducted in the Catchment Area of Plot 13, Wanagama Forest, Gunungkidul, Special Region of Yogyakarta, from November 2025 to April 2026. The data collected included daily rainfall data using an Automatic Rainfall Recorder (ARR), daily water level data using an Automatic Water Level Recorder (AWLR), daily water discharge data measured with a SPAS type V-notch weir (90°), suspended sediment samples using a Raising Stage Suspended Sampler (RSSS), as well as vegetation and topographic data. The collected data were then processed and analyzed using simple regression analysis to determine the relationship between rainfall characteristics and suspended sediment.

The results indicate that there were variations in rainfall characteristics during the study period. The total suspended sediment yield obtained was 4,31 tons/ha/year or 0,72 tons/ha/months. Rainfall characteristics have a significant relationship with suspended sediment load. Rainfall depth (R^2 = 0,93) and maximum 30 minute rainfall intensity (R^2 = 0,69) are identified as factors that has strong effect on suspended sediment. Extreme rainfall events have the potential to be the main factor controlling erosion and sediment transport in the catchment area.

Keywords: Wanagama, catchment area, suspended sediment load, rainfall characteristics

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[1] Student of Faculty of Forestry UGM
[2] Lecturer of Faculty of Forestry UGM