Identifikasi Kelembaban Tanah Sebagai Faktor Kekeringan Selama Tahun Indian Ocean Dipole di DAS Cilutung = The Identification Of Soil Moisture As A Factor Of Drought In Cilutung Watershed During Indian Ocean Dipole Year

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Abstrak

Peristiwa Indian Ocean Dipole ditahun 2019 telah menyebabkan beberapa kejadian kering di DAS Cilutung. Dibutuhkan informasi nilai kelembaban tanah baik secara spasial, temporal dan perubahannya untuk mengidentifikasi nilai kelembaban tanah sebagai faktor kekeringan di DAS Cilutung. Data Landsat 8 OLI-TIRS dimanfaatkan untuk mendapatkan nilai kelembaban tanah berdasarkan metode Soil Moisture Index (SMI) dengan menerapkan metode segitiga antara Land Surface Temperature (LST) dan Normalized Difference Vegetation Index (NDVI). Penelitian ini melakukan analisis pola spasial kelembaban tanah dan mengidentifikasi karakteristik fisik yang terbentuk di wilayah dengan nilai kelembaban tanah kering dan sangat kering di DAS Cilutung selama periode bulan kering tahun 2019. Hasil penelitian menunjukan selama periode bulan kering tahun 2019 di DAS Cilutung nilai Soil Moisture Index akan semakin tinggi pada lereng yang curam, penggunaan tanahnya berupa semak belukar, hutan, dan pertanian lahan kering campuran, pada jenis tanah podsolik merah kuning sedangkan nilai Soil Moisture Index akan semakin rendah pada lereng datar, penggunaan tanah permukiman dan tanah terbuka, pada jenis tanah grumusol. Berdasarkan analisis pengelompokan metode K-Means, wilayah dengan nilai kelembaban tanah kering dan sangat kering memiliki karakteristik fisik lereng datar, penggunaan tanah hutan, seperti permukiman, pertanian lahan kering campuran, tanah terbuka dan sawah serta memiliki jenis tanah grumusol, latosol dan andosol. <hr /> The Indian Ocean Dipole event in 2019 has caused several drought events in the Cilutung Watershed. The information about the spatial and temporal soil moisture distribution along its changes is needed to identify soil moisture values as a drought factor in the Cilutung Watershed. The Landsat 8 OLI-TIRS data used to get the value of soil moisture based on Soil Moisture Index method by applying the triangle method between Land Surface Temperature (LST) and Normalized Difference Vegetation Index (NDVI). This study analyses the spatial patterns of soil moisture and identifies physical characteristics that are forming in the areas with dry and very dry soil moisture values in the Cilutung Watershed during the dry period in 2019. The results showed that in the Cilutung Watershed during the dry month period in 2019, the Soil Moisture Index value would be higher on steep slopes, with the land-use consisting of shrubs, forests and mixed dryland agriculture, with the type of soils, red-yellow podzolic while the Soil Moisture Index value would be lower on the flat slopes, with the land-use consisting of residential land and open land, with the type of soils grumusol. Based on the K-Means grouping analysis method, the areas with dry and very dry soil moisture values in the Cilutung Watershed tends to have physical characteristics of flat slopes, the type land use such as settlement, mixed dryland agriculture, open land and rice fields, with the soil types grumusol, latosol and andosol.