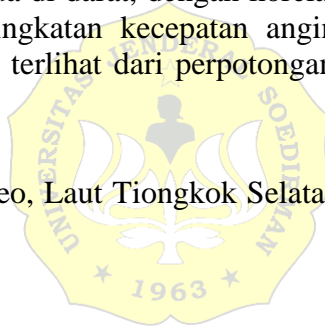


ABSTRAK

Vorteks Borneo (VB) adalah gangguan cuaca siklonik jangka pendek (1–3 hari) di atas Laut Tiongkok Selatan (LTS), dengan radius jangkauan hingga 1000 km mencakup wilayah Borneo (Kalimantan, Malaysia, Brunei Darussalam). Penelitian sebelumnya menunjukkan variasi siklus hidup VB mempengaruhi aktivitas konvektif di LTS, namun dampak VB dengan siklus hidup panjang terhadap cuaca di Pulau Jawa belum diteliti. Studi kasus VB pada 2–10 Maret 2023 dilakukan menggunakan data angin, vortisitas relatif, kelembaban spesifik, temperatur, *Outgoing Longwave Radiation* (OLR), *Sea Surface Temperature* (SST), dan data awan dari *European-Reanalysis* (ERA5), serta data hujan dari *Global Satellite Mapping* (GSMaP). Berdasarkan evolusinya, VB dikategorikan menjadi tiga fase: pra-VB (25 Februari–1 Maret 2023), saat VB (2–10 Maret 2023), dan pasca-VB (11–15 Maret 2023). Analisis menggunakan metode spasial, komposit, diurnal, dan korelasi menunjukkan bahwa pada fase pra-VB, terjadi peningkatan aktivitas konvektif dan hujan di Kalimantan Barat dan Jawa Barat, didukung oleh konvergensi di LTS dan modulasi gelombang Kelvin dan Rossby. Selama fase VB, aktivitas konvektif terpusat di LTS. Pada fase pasca-VB, sisa-sisa aktivitas konvektif masih ada di darat, dengan korelasi yang signifikan (-0.8513). Hal ini menunjukkan peningkatan kecepatan angin berhubungan erat dengan penurunan OLR, yang juga terlihat dari perpotongan grafik OLR dan kecepatan angin pada 7 Maret 2023.

Kata Kunci: Vorteks Borneo, Laut Tiongkok Selatan, Benua Maritim Indonesia, aktivitas konvektif.



ABSTRACT

The Borneo Vortex (VB) is a short-term (1-3 days) cyclonic weather disturbance over the South China Sea (SST), with a radius of up to 1000 km covering the Borneo region (Kalimantan, Malaysia, Brunei Darussalam). Previous studies have shown that variations in the VB life cycle affect convective activity in the LTS, but the impact of VB with a long life cycle on weather on Java Island has not been studied. The VB case study on March 2–10, 2023, was conducted using wind data, relative vorticity, specific humidity, temperature, Outgoing Longwave Radiation (OLR), Sea Surface Temperature (SST), and cloud data from European-Reanalysis (ERA5), as well as rain data from Global Satellite Mapping (GSMaP). Based on its evolution, VB is categorized into three phases: pre-VB (25 February–1 March 2023), during VB (2–10 March 2023), and post-VB (11–15 March 2023). Analysis using spatial, composite, diurnal, and correlation methods showed that in the pre-VB phase, there was an increase in convective activity and rain over West Kalimantan and West Java, supported by convergence in the LTS and modulation of Kelvin and Rossby waves. During the VB phase, convective activity was centered in the LTS. In the post-VB phase, remnants of convective activity were still present over land, with a significant correlation (-0.8513). This shows that the increase in wind speed is closely related to the decrease in OLR, which is also evident from the intersection of the OLR and wind speed graphs on March 7, 2023.

Keywords: *Borneo Vortex, South China Sea, Indonesian Maritime Continent, convective activity.*

