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THE SEA-LAND BREEZE EFFECT ON THE DIURNAL CYCLE OF CONVECTIVE ACTIVITIES IN EASTERN COAST OF NORTH SUMATERA

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Abstract

The location of Eastern Coast of North Sumatra directly adjacent to the Malacca Strait indicates that there is the sea-land breeze circulation occurred. The sea-land breeze circulation affects the atmospheric dynamics. This study aims to simulate the sea-land breeze circulation and then analyze how it affects the diurnal cycle of convective activity. The convective activity was identified using the convective index, moisture transport, and rainfall distribution. ECMWF data processed to determine the sea-land breeze day based on Six Filtering Method and then simulate it. The Himawari-8 satellite data used to calculate the convective index to show the spatial distribution of convective area. The specific humidity and wind of each pressure level from ECMWF data used to calculate the moisture transport. The GSMaP rainfall data used to plot the diurnal rainfall distribution spatially and temporally. Based on the analysis of penetration and diurnal wind direction known that the sea breeze on the East Coast of North Sumatra is the Northeast wind. The sea-land breeze circulation causes the formation of a convergence area with a high convective index value. The circulation of sea-land breeze caused the migration of day-night rainy areas which shown by patterns of the diurnal moisture transport and diurnal.