Topic: Rainfall Variability over Thailand and Its Possible Teleconnection to Climate Modes

Name of student: Ms. Sarinya Kirtphaiboon   **Student ID:** 55300700402

Name of Advisor: Assoc. Prof. Dr. Prungchan Wongwises

Name of Co-Advisor: Assoc. Prof. Dr. Usa Humphries

ABSTRACT

This study analyzed the monthly rainfall data of the Global Precipitation Climatology Centre (GPCC) over Thailand, covering the period from 1971 to 2010 using the Empirical Orthogonal Function (EOF) technique. The most dominant mode accounts for 21.6% of the total variance, when interpreting the rainfall from the principal component time series and associated eigenvector. The next part was a study of the relationship with ENSO using smoothed anomalies with the low-pass filter between the Niño 3.4 index and the principal component time series It was found that the Niño 3.4 index leads the rainfall anomalies by 4 months. But it was of the relationship with Indian Ocean Dipole (IOD) using smoothed anomalies with the low-pass filter between Dipole Mode Index (DMI) and the principal component time series. It was found that the rainfall variability over Thailand has less correlation with IOD. This study used ENSO events divided into weak and strong intensity classes. It was based on composites of fourteen weak La Niña events, six strong La Niña events, twelve weak El Niño events and six strong El Niño events. It was found that there was high rainfall in La Niña events, whereas there was low rainfall in El Niño events. Also, we constructed the corresponding wind circulation and the sea level pressure in order to better understand the mechanisms associated with this events that have affected rainfall variability over Thailand.

Keywords: Rainfall over Thailand; EOF; GPCC; El Niño; La Niña; IOD