

Development of Indonesian Monsoon Index (IMI) Based on EAR and other Facilities at Kototabang

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This study is mainly concerned on developing of the Indonesian Monsoon Index (IMI) based on the Equatorial Atmosphere Radar (EAR) at Kototabang, West Sumatera (0.2S; 100.32E, 865 m from MSL). We have analyzed the zonal and meridional wind data of EAR for period of July 2001 to July 2008. By applying the bandpass filtering method that we call as the Fast Fourier Transform (FFT) and Wavelet (WL) technique, we have identified the characteristics of meridional wind velocity in frequency domain. The predominant peak oscillation that appear is Annual Oscillation (AO) for the meridional wind velocity between 8 to 18 km above mean sea level (MSL). While, the strongest is located around 14.1 km from MSL (It's equal to 200 hPa). At the same time period observation of EAR, we analyzed also the Global Monsoon Index as represented by the Indian Summer Monsoon Index (ISMI), Western North Pacific Monsoon Index (WNPMI), and Australian Monsoon Index (AUSMI), respectively. We found a 12 months oscillation for Global Monsoon Index that we call as the AO. By comparing them with meridional wind velocity of EAR, we found a good agreement between AUSMI and the meridional wind velocity of EAR, especially. By this preliminary result, we suspect that we can use the AUSMI parameter to detect the Monsoon Signal over Indonesia, especially for the Western part of Indonesia region, especially at about the 200 hPa. We wish to develop these results by investigating the Monsoonal Onset, especially, including their anomalies, since we know that Monsoon is still a pre dominant peak oscillation at the Indonesian Maritime Continent (IMC) which have big effect to control the complexity of atmospheric dynamic over Indonesia. If it looks possible, we wish also to develop the IMI model that suitable for Indonesia region. Detailed information due to that preliminary results including the basic idea of this proposal research will be discussed at our presentation.

Keywords: IMI, EAR, AUSMI, Model