Variation of Phase Relation Between OLR in Western Pacific Warm Pool and the Equator

*Kambiz Torabi¹, Yukihiro Takahashi

1. Department of Cosmosciences, Hokkaido University

Linkage between the 11-year solar activity based on sunspot number and climate change of the Earth has been suggested by monthly or yearly averaged data, even though short periodic variation could modulate longer periodic phenomena. In pervious study, 27-day variation of Outgoing Longwave Radiation (OLR) during solar maximum year was found by Takahashi et al. (2010). Moreover, anti-phase relation between lightning around Marine Continent and OLR around Western Pacific Warm Pool region was found by Sanmiya et al. (2013).

Motivation of this study is that clarifying the phase relation of about one-month periodic variation of OLR in Western Pacific Warm Pool and the equator. We have performed cross correlation analysis between OLR in Western Pacific Warm Pool and the equator by using interpolated OLR data from NOAA. Western Pacific Warm Pool is known as correlating negatively with lightning around Marine Continent and typhoon-rich area. The equator is known as correlating positively with lightning around Marine Continent and typhoon-pool area. We will discuss about characteristics of variation of phase relation from 1974 to 2018 which includes 21st to 24th of solar cycle.

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