



SPARC Workshop SHARP2016

Long-term variations of the equatorial quasi-biennial oscillation in ERA-40 and ERA-Interim data

Prof. Kiyotaka Shibata

Kochi University of Technology

shibata.kiyotaka@kochi-tech.ac.jp

Linear trend and long-term variations of the equatorial quasi-biennial oscillation (QBO) in the zonal mean zonal wind are investigated using the ERA-40 and ERA-Interim reanalysis data. The QBO components are abstracted with a Lanczos band-pass filter of 20-40 months period and the QBO amplitudes are calculated as $\sqrt{2}\sigma$ (σ : a root mean square of monthly time series) over consecutive three cycles assuming a monochromatic wave. A wavelet analysis with a Morlet mother wavelet is also used to obtain the QBO amplitude. Linear trend and decadal variations are evidently analyzed in the QBO amplitude evolution. It is found that the QBO decadal variations have significant interhemispheric differences depending on altitudes.