A study of wave activities and ozone fluctuations around the Maritime Continent during YMC-BSM 2018

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The Transformed-Eulerian Mean (TEM) equations proposed by Andrews and McIntyre are useful tools for diagnosing the relationship between wave activities and the mean state. The three-dimensional (3D) extension of TEM equations has been conducted since 1980s and the recent study uses the 3D wave activity flux for the analysis of special structure of Rossby wave activities during Stratospheric Sudden Warming. On the other hand, to investigate the material transport associated with wave activities, it is necessary to consider the mean geostrophic flow (balanced flow) and the phase structure of stationary waves, which are included in the horizontal component of the 3D residual flow. Then, a unified analysis method using the 3D residual flow has not been established.
Based on the above, the purpose of this study is to establish a method for diagnosing the 3D structure of material transport associated with wave activities. We report the results of investigation on wave activities and ozone fluctuation around the Maritime Continent during the YMC-BSM 2018 campaign.

Keywords: meridional circulation, wave activities

