

# Relationship between the Boreal Summer Intra-seasonal Oscillation and the stratospheric Quasi-Biennial Oscillation

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In the equatorial stratosphere, quasi-biennial oscillation (QBO) is the dominant mode. The previous studies have shown the influence of QBO on Madden Julian Oscillation (MJO) during the austral summer (Nshimoto and Yoden 2017; Son et al. 2017). On the other hand, Kikuchi et al. (2012) pointed out that boreal summer intra-seasonal oscillation (BSISO), in which active convective region migrate northward in the Indian Ocean and the western Pacific with a period of 30 – 90 days, is the dominant mode compared to MJO during the boreal summer. In this study, statistical relationships between stratospheric BSISO and QBO are examined. BSISO index based on Kikuchi et al. (2012) and the Japanese 55-year Reanalysis (JRA-55, Kobayashi et al. 2015) are used for composite analysis. The results also reveal that the amplitudes of BSISO tend to be extraordinarily large during the strong low-frequency easterly anomalies at around the 20-hPa level associated with quasi-biennial oscillation (QBO). It is also found that the statistical significance of lower static stability around the tropopause when northward propagation of the convection is pronounced in the equatorial Indian Ocean. These results suggest influence of the stratospheric circulation on the activity of BSISO in the troposphere.

Key words: Boreal summer intra-seasonal oscillation, quasi-biennial oscillation, static stability

## References

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