

AAS003-P08

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## Observed connection of the stratospheric QBO with ENSO in radiosonde data

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Using a stratospheric zonal wind data archive of radiosonde observations at equatorial stations for 1953-2008, this study investigates whether or not signals of the Quasi-Biennial Oscillation (QBO) vary with the El Niño/Southern Oscillation (ENSO) cycle. The signals of the QBO are represented by trajectories in a phase space spanned by time series of two leading modes of wind variability. Two properties of the trajectories, distance from the origin and time change in argument, which are proxies for amplitude and phase progression rate of the QBO respectively, are first examined in relation to seasons and QBO phases. The examination ensures known features of the QBO including the so-called seasonal locking and more regular phase propagation for westerly phase. A further comparison of the properties between cold and warm ENSO conditions (La Niña and El Niño, respectively) reveals unprecedented evidence of clear variations of the QBO with ENSO: the QBO signals exhibit weaker amplitude and faster phase propagation for El Niño conditions. Such variations are also supported by a composite analysis of zonal wind anomalies. We also discuss a possible connection of the ENSO-associated changes in the QBO with those in equatorial wave activity.

Keywords: QBO, ENSO