



The atmospheric circulation on the synoptic scale during the El-Nino - Southern Oscillation events

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Using the monthly NCEP/NCAR reanalysis data on the wind velocity above the tropical region the main schemes of the atmospheric circulation in tropical zone are defined more precisely and the new elements and peculiarities are shown, including the average characteristics and variability. First of all it is related to the spatial and temporal patterns of the zonal meridian circulation, the vertical trade wind structure, and the regional peculiarities of the tropical monsoonal circulation and connected to the monsoons equatorial western wind zone.

The compositional fields for the zonal circulation were plotted separately for the El-Nino and La-Nina events. It is shown that the most significant variability in the atmospheric circulation during ENSO is observed mainly during the southern summer in the tropical zone of the Pacific and the adjacent parts of the continents.

For the classification of the synoptic processes in the tropical Pacific using daily data, criteria are proposed for identifying the different evolutionary phases of the equatorial western wind zone. The criteria are based on the localization, extent and activity of the western wind zone on the isobaric surface 850 hPa. According to this classification all the observed variants of the western wind regime above the tropical Pacific can be divided into three classes: normal, active and break. For each class we find one specific pattern of tropical atmospheric circulation centers and divergent wind velocity potential in the lower and upper troposphere.

Using the singular value decomposition method (SVD) the connection between the atmospheric circulation and the sea surface temperature (SST) of equatorial Pacific is investigated. It is important to note that SVD method allows to separate two processes - climatic standard and anomaly.