



## **The application of the MSU circulating index for the quantitative assessment of the synoptic conditions in the tropical latitudes during ENSO events**

**E.V. Sokolikhina** (1,2), E.K. Semenov (2), N.N. Sokolikhina (2)

(1) P.P. Shirshov Institute of Oceanology, Moscow, Russia; (2) Meteorological Department, Moscow State University, Moscow, Russia

We estimated the possibility of the application of the circulating index, worked out in Moscow State University, in the problems of the synoptic meteorology of the tropics. Using the daily NCEP/NCAR reanalysis data above the tropical region of the Pacific (separately for the El-Nino and La-Nina events) the circulating indices of wind velocity along the contours of the tropical cyclones were calculated. The circulation of these tropical cyclones led to the forming of the most active variants of the ENSO warm phase. For the investigation of the synoptic mechanism of the forming of the eastern wind anomaly in the upper troposphere the possibility of the application of the circulating index was considered for the assessment of the upper-level tropospheric troughs transformation to the upper-level subtropical anticyclones. Exactly this transformation is observed in the upper troposphere above the central and eastern parts of the tropical Pacific during the most active El-Nino events. Using the circulating index the climatology of the tropical cyclogenesis above the regions of the Northern Australia and southern Pacific is simulated, as applied to the problems of the forming of the atmospheric circulation anomaly and connected with it the SST anomaly, which was observed during the warm and cold phases of the ENSO events. The comparison of the obtained characteristics of the tropical circulation with the real wind fields in the lower (H850 hPa) and in the upper (H200 hPa) troposphere showed that in general the MSU circulating index correctly simulates the synoptical pattern of the real circulation in the tropics and can be used for the quantitative assessment of the baric circulation objects in the low latitudes.