## SPACE-TIME VARIABILITY OF THE FIELD OF MECHANICAL ENERGY TRANSFER FROM THE ATMOSPHERE TO THE INDIAN OCEAN

by

<u>Polnikov V.G.</u>, Pogarskii F.A, Golitsyn G.S. Obukhov Institute of Atmospheric Physics of RAS, Moscow, Russia E-mail: <u>polnikov@mail.ru</u>

## Abstract

For the first time a simulation of the field of mechanical energy transfer from the atmosphere into the ocean (MET) is executed on the basis of traditional numerical simulation of the wind-wave evolution in the Indian Ocean for the period 1998 to 2009. The field MET is described by two integral values calculated per unit area: the total rate of energy flux from wind to waves and the rate of wind-wave energy loss. To solve this problem the wind field from the archive of NCEP / NOAA was used, and all the fields were calculated by using numerical model WAM with the modified source function proposed by Polnikov(2005). The analysis of the MET fields includes: mapping the fields with different scales of space-time averaging, partition of the fields into 6 zones in the Indian ocean area, estimation of extreme and average values of the MET, assessment of the 12-year trend of integral quantities of MET. These results are expanding significantly the area of the air-sea interaction research, and clarify a number of estimates obtained earlier.

Keywords: Indian Ocean, the wind field and wave, wind and waves, the rate of transfer of mechanical energy from the atmosphere into the ocean.