

Investigation of Meteorological Parameters in the Lower and Upper Troposphere During Tropical Cyclone Haiyan

Pegahfar, Nafiseh^{1*}; Ghafarian, Parvin²

1- Assistant Professor, Atmospheric Research Center, Iranian National Institute for Oceanography and Atmospheric Science, Tehran, Iran, Email: pegahfar@inio.ac.ir;

2- Assistant Professor, Atmospheric Research Center, Iranian National Institute for Oceanography and Atmospheric Science, Tehran, Iran, Email: p.ghafarian@inio.ac.ir

Received Date: May 2, 2016

*Corresponding Author

Accepted Date: August 7, 2016

© 2016 Journal of Oceanography. All rights reserved.

Abstract

In the current research, tropical cyclone Haiyan (TCH) was focused and some meteorological parameters in the lower- and upper-levels of troposphere have been investigated. For this aim, five datasets including re-analysis and observational data have been used and some parameters including sea surface temperature, relative humidity, potential temperature, relative vorticity, vertical wind shear, geo-potential height, temperature and wind vector have been analyzed, based on latitude-longitude distributions, vertical profiles and time series plots.

Results indicated that all focused parameters in the lower levels of troposphere were disturbed from the beginning of TCH lifetime and also contributed in TCH intensification and weakening. However, variation of the selected parameters at the upper part of troposphere started with a delay of about 2-3 days, they affect TCH intensification and weakening. Conclusively, it can be claimed that both lower- and upper-levels of troposphere have been changed during TCH and their positive interaction helped TCH to be intensified to category 5.

Keywords: *Geopotential height, Potential temperature, Sea surface temperature, Relative vorticity, Tropopause, Vertical wind shear.*
