



The effect of tropical cyclones on coastal ocean and atmosphere interaction

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The ocean–atmosphere system of the Earth’s tropical zone has a unique property - it can generate organized and stable mesoscale vortex structures, TCs, from the atmospheric turbulence in the global circulation system (1). The TC is a rotating low-pressure weather system. It is also one of the most powerful atmospheric hazards. The TC is accompanied with very strong winds, heavy rains, flood, thunderstorms, storm surge and large ocean waves.

But the most destructive aspects occur at landfall. At this time it loses its strength rapidly (due to the low humidity of the air above the land) and collapses on the coast with all the accumulated power. As is known, TCs generates Gravity Waves, which under certain conditions can penetrate to significant heights (up to the heights of the ionosphere).

In this report the author analyses the dynamic ocean parameters and atmospheric parameters of some of the most famous and devastating tropical cyclones of the Australian SW coastal area for the last years.

1. L. B. Vanina-Dart and E. A. Sharkov, Main Results of Recent Investigations into the Physical Mechanisms of the Interaction of Tropical Cyclones and the Ionosphere//ISSN 0001-4338, Izvestiya, Atmospheric and Oceanic Physics, 2016, Vol. 52, No. 9, pp. 1119–1126. © Pleiades Publishing, Ltd., 2016.