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Estimation of the internal structure of tropospheric waves over the tropical Atlantic according to reanalysis data / Martinez E.N., Balakin V.S., Shipko Yu.V., Kolychev O.V., Semenov M.E. // Hydrometeorological research and forecasts. 2026, no. 3 (401), pp. 154-166.

A subject of research is the eastern tropical mid-tropospheric waves over the Atlantic region, the development of which is accompanied by heavy rains and thunderstorms and sometimes leads to the formation of tropical cyclones. The initial data are the data from the NCEP/DOE AMIP-II reanalysis of atmospheric parameters at the levels of 850 and 700 hPa during the wave activity period (June–October) for 2018–2023. The research methods are the applied statistics approaches: cluster, factor, and discriminant analyses. A factor model for quantitative assessment of synoptic conditions is built. Statistically different groups of circulation objects are identified, for which descriptions are given with examples of typical constant pressure charts. A model is presented for classification of synoptic conditions by types, including those implementing tropical waves.

Keywords: tropical wave, reanalysis, geopotential height, isobaric level, factor, cluster, constant pressure chart

Tab. 1. Fig. 10. Ref. 15