

Analysis of Variability of the Surface Heat and Impulse Fluxes and Water Vapor Content of the Atmosphere over the North Atlantic from the Satellite Microwave Data

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Abstract. The estimates of spatial and temporal variations of monthly mean values of the near-surface vertical turbulent fluxes of sensible, latent heat and impulse and the atmospheric total water vapor content in the North Atlantic were obtained based on the data of the satellite microwave measurements. The Gulf Stream, Newfoundland, and Norwegian areas, which are characterized by the strongest intensity of the ocean-atmosphere heat exchanges, are in a focus of this study. The long-term trends in water vapor changes over these areas were estimated. Some peculiarities of the water vapor dynamics were observed in 2010, which was manifested by intensive oil spills in the Gulf of Mexico in the spring of this year as well as strong summer dryness over the European part of Russia.

Keywords: microwave radiation, brightness temperature, ocean-atmosphere system, energy active zones, sensible, latent heat and impulse, near-surface fluxes, water vapor of the atmosphere, radiometers SSM/I and AMSR-E