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Laboratory investigation of the effect of foam influence on the processes of momentum and heat transfer between ocean and atmosphere in the boundary layer

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The processes of momentum and heat transfer between ocean and atmosphere in the boundary layer in case of foam present on the water surface were investigated within laboratory modeling for a wide range of wind speed and surface wave including hurricane conditions (U10 from 12 to 38 m/s). Experiments were carried out on the Hight Speed Wind-Wave Flume of the Large Thermostratified Tank of IAP RAS. A special underwater foam generator was used for continuous surface foam seeding. Theory of self-similarity of air flow parameters in the flume was used to calculate values aerodynamic and heat transfer coefficients from the velocity and temperature profiles measured by Pitot and hotwire gauges respectively. Simultaneous measurements of surface elevation with system of three wire wave gauges allow to obtain spectra and integral parameters of waves.

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