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A NEW DISTRIBUTION — L PROBABILITY DISTRIBUTION FUNCTION

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Abstract

During study of problem for geostrophic and static equilibrium in atmosphere L distribution function was deduced. L function possesses unique parameter θ_M, Comparing with other famous probability distribution L distribution function has similarly certain properties such as:

(1) Variance is $(\theta_M/3)^2$; standard variance is $\theta_M/3$, mathematical expectation equal to zero,

(2) Fourth moment $(\theta_M)^4/25$, coefficient of kurtosis is 0.24, which more 0.24 than that of Normal distribution function. Third moment and coefficient of skew are both zero.

(3) m-th moment exist, probability is equal to2/e (74.04％) within coverage of $(-\theta_M/e < \theta \leq \theta_M/e)$; probability approximately 70.04％ within coverage of $(-\theta_M/3 < \theta \leq \theta_M/3)$;

(4) Continuous random variables of L function thickly more scatter in area near to its mean value than Normal distribution function does.

Keywords: L probability density function; Variance; Expected value; The coefficient of kurtosis; ***m***-th moment.

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