



Perspectives of non-gaussianity in large scale weather and climate Variability

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Understanding non-Gaussian statistics of weather and climate variability has important consequences in the atmospheric and ocean sciences not least because weather and climate risk assessment depends on knowing and understanding the exact shape of the system's probability density function. While there is no doubt that many atmospheric variables exhibit non-Gaussian statistics on many time (and spatial) scales a full and complete understanding of this phenomenon remains a challenge. Various mechanisms behind the observed non-Gaussian statistics have been proposed but remain, however, multifaceted and scattered in the literature. Given the importance of this subject for climate research, and in an attempt to contribute to this topic a thorough review and discussion of the different mechanisms that lead to non-Gaussian weather and climate variability are presented in this paper and an outlook is given.