Geophysical Research Abstracts
Vol. 19, EGU2017-16039, 2017
EGU General Assembly 2017

Lyapunov vectors and attractor dimension exploration in a three layer quasi geostropic model

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The understanding of extratropical low frequency variability (LFV) has vital importance to improve the predictability of weather. Idealized models provide opportunity to explore the theoretical concepts effectively, and hence can be applied to study the extratopical LFV. The three layer model of quasi-geostrophic potential vorticity (Marshall and Molteni ,1993) has been used to explore the long-term predictability. The predictability is measured by the computation of Lyapunov exponents which provide an indication of the choaticity of the dynamical system. In this study we present the results for the circulation regimes, lyapunov exponent spectrum and the attractor dimension from a quasi-geostrophic three layer model.