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Aspects of the Theory of Teleconnections

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Abstract

Some basic aspects of the theory of teleconnections are reviewed and some open problems described. The focus is on the wavelike-patterns exemplified by the Pacific-North American (PNA) pattern. Linear Rossby wave theory provides a starting point for an understanding of the horizontal and vertical structures of such patterns. Some implications of a pseudomomentum perspective on linear wave dynamics are highlighted.

The ambiguities of energetic analyses for linear disturbances on zonally asymmetric flows are described, along with barotropic instability of zonally asymmetric flows. The absolute instability-wave accumulation perspective is emphasized as an especially promising avenue for further research.