



Potential vorticity view to tropopause folding in weather disturbances affecting Iran in Nov-Dec 2003

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It is known that tropopause folding and a number of important phenomena including upper level tropospheric fronts, jet streams, deep convection, cyclogenesis are related. Potential vorticity (PV) view provides a powerful method to study tropopause folding and its effect on cyclogenesis and frontogenesis. In upper troposphere-lower stratosphere, where friction and diabatic heating are insignificant, this dynamical quantity is nearly conserved. Tracking the dominant features of PV distribution in space and time, help us to understand the structure of tropopause folding and its relation with upper level trough formation and amplification of weather disturbance.

In spite of the importance of tropopause folding in weather disturbance, little is known about the structure of tropopause in disturbance affecting Iran. This paper aims to investigate the dynamics of tropopause folding in this region. The analyzed NOAA data in a regular grid with 1 degree resolution (latitudinal and **Longitudinal**) are used and various dynamical quantities like absolute vorticity, potential vorticity, potential temperature, vertical velocity ... in various Isobaric level are studied. The contribution of various factor in the lower and upper level cyclogenesis as well as their interaction have been investigated to understand the three-dimension structure of weather disturbances.